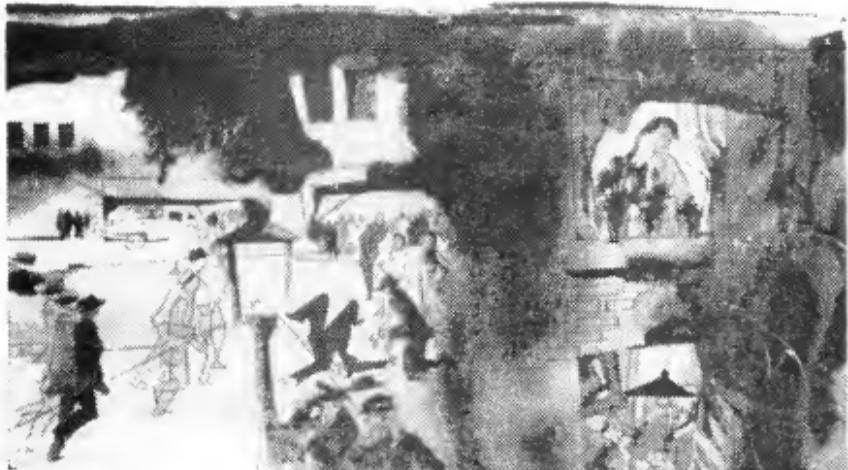


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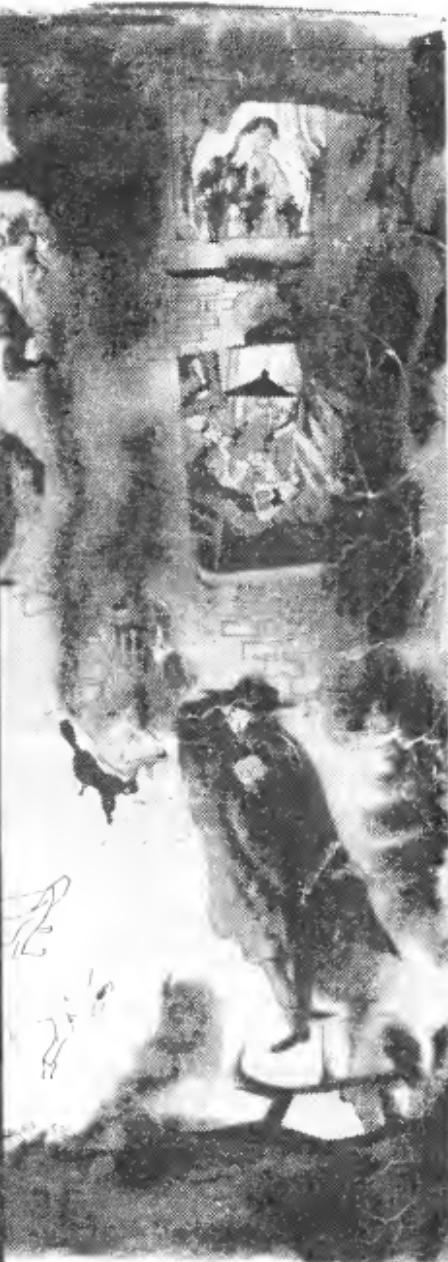
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THE DEMEANED VIEWPOINT

It is terribly hard to convince a man he's wrong, under the best of circumstances. But it's even harder to convince him thoroughly that he's wrong—when he isn't. Things like the old folk-superstition, anciently held by the peasants of Europe, that, if you get a bad cut, putting a few spider webs over it will stop the bleeding. It's terribly hard to convince them that that's a silly superstition.

It just happens that the alien protein of spider silk is both highly reactive—that's part of why it's sticky—and highly alien; it causes the blood platelettes to shatter and cause clotting almost instantly. The strong network of spider-silk threads then form an excellent framework for the clot to establish itself on. A freshly made spider web is usually quite clean, and is more reactive than an old one. Works much better than the kind of highly non-sterile cloths a peasant is apt to have around.

It is, by the nature of things, the inevitable fate of any great leader in thought to have a horrible time getting his ideas over to his fellow man. He's a great leader because he has

brand-new and important thoughts—thoughts that are highly disturbing, too, since they mean the abandonment of older, less effective ideas, that have long been cherished. The inevitable consequence of that situation is that every great leader blows his top every so often about the asinity of Mankind, the stupidity, recalcitrance, and general no-goodness of thick-witted, non-thinking, stubborn Man. Galileo's original papers are, I understand, marvels of vituperative language, much of it unprintable in any modern book. Every great leader has had excellent reason to fulminate about the recalcitrance and stupidity of Man—on how Man rejects stubbornly those things that are wise and good and sensible, clinging leechlike to his pet superstitions, his pet emotional responses, and his beloved—and stupid—superstitions.

In the Eastern tradition, the Great Thinker simply retires into himself, thinks his own great thoughts, and lets those who want to take the trouble to learn come to him. The Western tradition puts the Great Man on the spot; if you're so darned smart,

let's see you do something useful with your ideas! And the first useful thing you can do is teach me. If you can't do anything useful with your ideas—why should I supply you with useful food, clothing and shelter? Why should I spend my useful-to-me time listening to you?

This, too, has caused more than one of the West's Great Thinkers to blow his stack on the subject of "gross materialism." I suspect a certain undercurrent of resentment that the world wouldn't give him the gross material to eat that he found necessary.

Now perhaps it would be worth while to review this situation, and see whether the indictments of Mankind's stupidity, recalcitrance, et cetera, are justified. The West's brutally ruthless tendency to make Gerald Genius get in and pitch for his living—to make his wonderful ideas useful—has unquestionably been exceedingly hard on the dispositions of many great, and potentially great men. It's distracted them, and forced them to spend time earning a living that they would prefer to have spent working out their great ideas. It's certainly been a handicap to those men.

But . . . well, maybe it has been worth while, at that. The East tried it the other way; it may well be that they achieved some mighty spiritual triumphs—but that's going to be hard to determine in another couple of centuries, since the highly teachable Western concepts are rapidly flooding over and submerging the

original Eastern concepts. (The Western concepts are more teachable, because about ninety per cent of the time of a Western genius had to be devoted to sweating out some way of getting his idea across. The result was that the great talents of first-order geniuses were channeled into developing teaching methods. It was darned hard on the geniuses—but the Race of Man had found a way to harness its greatest thinkers to the benefit of all!)

But I have a feeling that the result has also had its bad aspects; the Teachers have been teaching under violent protest. They've been teaching, all right, but with the boiling, colossal anger and resentment of truly tremendous personalities—and a lot of that angry resentment leaks through, too. The essence of its message is "Man is a thick-skulled, thick-witted, fumble-brained dope, who will learn nothing unless it is driven into his stubborn noggin with a bludgeon! And if he isn't bludgeoned into learning, he'd remain a stupid clod forever!"

These are the attitudes of a frustrated and angry genius, a Galileo who was far ahead of his time, a Copernicus, Newton, or a Plato's attitude. Their ideas were obvious to *them*—but they were geniuses, men of abnormal power and stature. Is it appropriate to condemn Mankind for not being made up entirely of top-level geniuses?

Naturally, the genius doesn't want to be lonely—he wants understand-

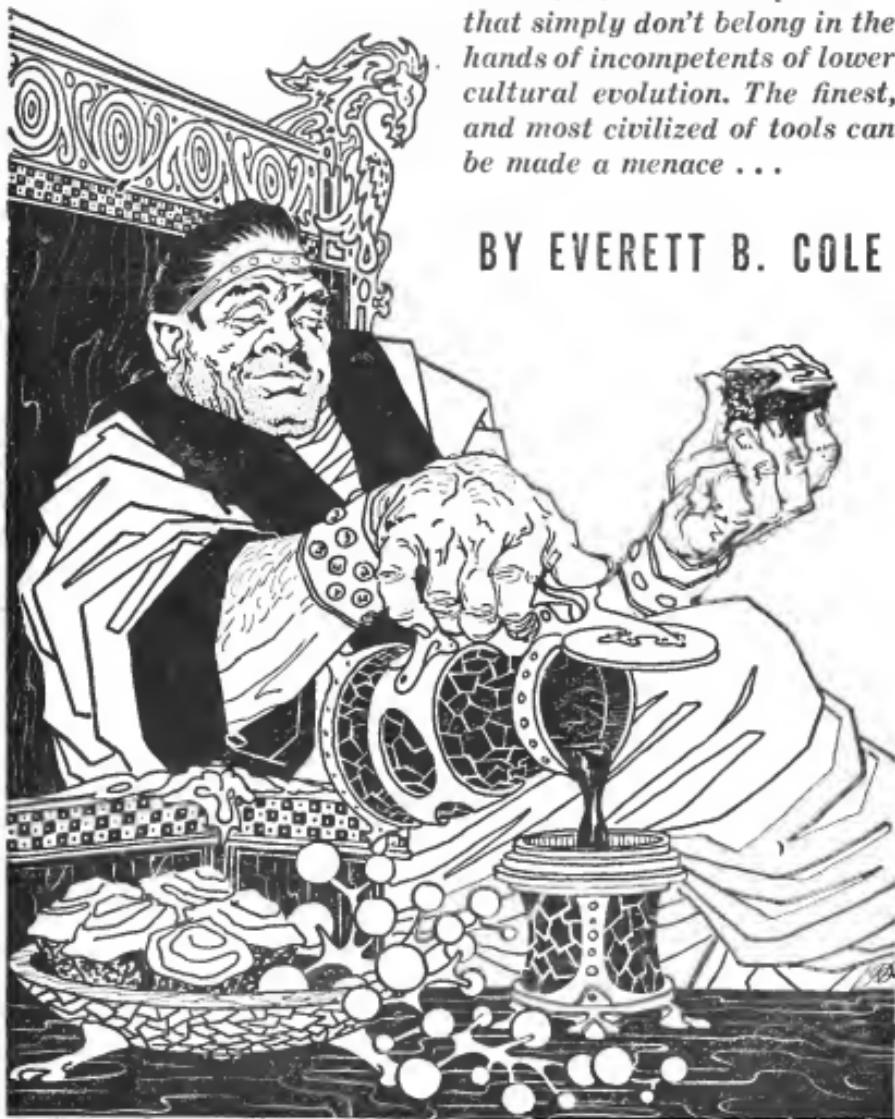
(Continued on page 160)

Illustrated by Freas

MILLENNIUM

There are devices a high-level culture could produce that simply don't belong in the hands of incompetents of lower cultural evolution. The finest, and most civilized of tools can be made a menace . . .

BY EVERETT B. COLE



Liewen Konar smiled wryly as he put a battered object on the bench. "Well, here's another piece recovered. Not worth much, I'd say, but here it is."

Obviously, it had once been a precisely fabricated piece of equipment. But its identity was almost lost. A hole was torn in the side of the metal box. Knobs were broken away from their shafts. The engraved legends were scored and worn to illegibility, and the meter was merely a black void in the panel. Whatever had been mounted at the top had been broken away, to leave ragged shards. Inside the gaping hole in the case, tiny, blackened components hung at odd angles.

Klion Mcinora looked at the wreckage and shook his head.

"I know it's supposed to be what's left of a medium range communicator," he said, "but I'd never believe it." He poked a finger inside the hole in the case, pushing a few components aside. Beyond them, a corroded wheel hung loosely in what had once been precision bearings.

"Where's the power unit?"

Konar shook his head. "No trace. Not much left of the viewsphere, either."

"Well." Meinora shook his head resignedly. "It's salvage. But we got it back." He stood back to look at the communicator. "Someone's been keeping the outside clean, I see."

Konar nodded. "It was a religious relic," he said. "Found it in an abbey." He reached into the bag he had placed on the floor.

"And here's a mental amplifier-communicator, personnel, heavy duty. Slightly used and somewhat out of adjustment, but complete and repairable." He withdrew a golden circlet, held it up for a moment, and carefully laid it on the bench beside the wrecked communicator. Its metal was dented, but untarnished.

"Don't want to get rough with it," he explained. "Something might be loose inside."

He reached again into the bag. "And a body shield, protector type, model GS/NO-10C. Again, somewhat used, but repairable. Even has its nomenclature label."

"Good enough." Meinora held a hand out and accepted the heavy belt. He turned it about in his hands, examining the workmanship. Finally, he looked closely at the long, narrow case mounted on the leather.

"See they counted this unit fairly well. Must have been using it."

"Yes, sir. It's operative. The Earl wore it all the time. Guess he kept up his reputation as a fighter that way. Be pretty hard to nick anyone with a sword if he had one of these running. And almost any clumsy leatherhead could slash the other guy up if he didn't have to worry about self-protection."

"I know." Meinora nodded quickly. "Seen it done. Anything more turned up?"

"One more thing. This hand weapon came from the same abbey I got the communicator from. I'd say it was pretty hopeless, too." Konar picked a flame-scarred frame from

his bag, then reached in again, to scoop up a few odd bits of metal.

"It was in pieces when we picked it up," he explained. "They kept it clean, but they couldn't get the flame pits out and reassembly was a little beyond them."

"Beyond us too, by now." Meinora looked curiously at the object. "Looks as though a couple of the boys shot it out."

"Guess they did, sir. Not once, but several times." Konar shrugged. "Malendes tells me he picked up several like this." He cocked his head to one side.

"Say, chief, how many of these things were kicking around on this unlucky planet?"

Meinora grimaced. "As far as we can determine, there were nine y-two operative sets originally issued. Each of the original native operatives was equipped with a mentacom and a body shield. Each of the eight operating teams had a communicator and three hand weapons, and the headquarters group had a flier, three communicators, a field detector set, and six hand weapons. Makes quite an equipment list."

"Any tools or maintenance equipment?"

Meinora shook his head. "Just operator manuals. And those will have deteriorated long ago. An inspection team was supposed to visit once a cycle for about fifty cycles, then once each five cycles after that. They would have taken care of maintenance. This operation was set up quite a while ago, you know. Operatives get

a lot more training now—and we don't use so many of them."

"So, something went wrong." Konar looked at the equipment on the bench. "How?" he asked. "How could it have happened?"

"Oh, we've got the sequence of events pretty well figured out by now." Meinora got to his feet. Of course, it's a virtually impossible situation—something no one would believe could happen. But it did." He looked thoughtfully at the ruined communicator.

"You know the history of the original operation on this planet?"

"Yes, sir. I looked it over. Planet was checked out by Exploration. They found a couple of civilizations in stasis and another that was about to go that way. Left alone, the natives'd have reverted to a primitive hunter stage—if they didn't go clear back to the caves. And when they did come up again, they'd have been savage terrors."

"Right. So a corps of native operatives was set up by Philosophical, to upset the stasis and hold a core of knowledge till the barbaric period following the collapse of one of the old empires was over. One civilization on one continent was chosen, because it was felt that its impact on the rest of the planet would be adequate to insure progress, and that any more extensive operation would tend to mold the planetary culture."

Konar nodded. "The old, standard procedure. It usually worked better than this, though. What happened this time?"

"The Merokian Confederation happened."

"But their penetration was nowhere near here."

"No, it wasn't. But they did attack Sector Nine. And they did destroy the headquarters. You remember that?"

"Yes, sir. I read about it in school. We lost a lot of people on that one." Konar frowned. "Long before my time in the Corps, of course, but I studied up on it. They used some sort of screen that scrambled the detectors, didn't they?"

"Something like that. Might have been coupled with someone's inattention, too. But that's unimportant now. The important thing is that the sector records were destroyed during the attack."

"Sure. But how about the permanent files that were forwarded to Aldebaran depository?"

Meinora smiled grimly. "Something else that couldn't happen. We're still looking for traces of that courier ship. I suppose they ran afoul of a Merokian task force, but there's nothing to go on. They just disappeared." He picked up the mental communicator, examining the signs of aging.

"One by one," he continued, "the case files and property records of Sector Nine are being reconstructed. Every guardsman even remotely associated with the Sector before the attack is being interviewed, and a lot of them are working on the reconstruction. It's been a long job, but we're nearly done now. This is one

of the last planets to be located and rechecked, and it's been over a period since the last visit they've had from any of our teams. On this planet, that's some fifty-odd generations. Evidently the original operatives didn't demolish their equipment, and fifty some generations of descendants have messed things up pretty thoroughly."

Konar looked at the bench. Besides the equipment he had just brought in, there were other items, all in varying stages of disrepair and ruin.

"Yes, sir," he agreed. "If this is a sample, and if the social conditions I've seen since I joined the team are typical, they have. Now what?"

"We've been picking up equipment. Piece by piece, we've been accounting for every one of those items issued. Some of 'em were lost. Some of 'em probably wore out and were discarded, or were burned—like this, only more so." Meinora pointed at the wrecked communicator.

"Local legends tell us about violent explosions, so we know a few actually discharged. And we've tracked down the place where the flier cracked up and bit out a hole the size of a barony. Those items are gone without trace." He sighed.

"That introduces an uncertainty factor, of course, but the equipment in the hands of natives, and the stuff just lying around in deserted areas has to be tracked down. This planet will develop a technology some day, and we don't want anything about to raise questions and doubts when it does. The folklore running around now is bad enough. When we get

the equipment back, we've got to clean up the social mess left by the descendants of those original operatives."

"Nice job."

"Very nice. We'll be busy for a long time." Meinora picked up a small tape reel. "Just got this," he explained. "That's why I was waiting for you here. It's an account of a mentacom and shield that got away. Probably stolen about twenty years ago, planetary. We're assigned to track it down and pick it up."

He turned to speak to a technician, who was working at another bench.

"You can have this stuff now. Bring in some more pretty soon."

Flor, the beater, was bone weary. The shadows were lengthening, hiding the details in the thickets, and all the hot day, he had been thrusting his way through thicket after thicket, in obedience to the instructions of the foresters. He had struck trees with his short club and had grunted and squealed, to startle the *khada* into flight. A few of the ugly beasts had come out, charging into the open, to be run down and speared by the nobles.

And Flor had tired of this hunt, as he had tired of many other hunts in the past. Hunting the savage *khada*, he thought resentfully, might be an amusing sport for the nobles. But to a serf, it was hard, lung-bursting work at best. At worst, it meant agonizing death beneath trampling hoofs and rending teeth.

To be sure, there would be meat

at the hunting lodge tonight, in plenty, and after the hunt dinner, he and the other serfs might take bits of the flesh home to their families. But that would be after the chores in the scullery were over. It would be many hours before Flor would be able to stumble homeward.

He relaxed, to enjoy the short respite he had gained by evading the forester. Sitting with his back to a small tree, he closed his eyes and folded his thick arms over his head. Of course, he would soon be found, and he would have to go back to the hunt. But this forester was a dull, soft fellow. He could be made to believe Flor's excuse that he had become lost for a time, and had been searching the woods for the other beaters.

The underbrush rustled and Flor heard the sound of disturbed leaves and heavy footfalls. A hunting charger was approaching, bearing one of the hunters. Quickly, Flor rose to his feet, sidling farther back into the thicket. Possibly, he might remain unseen. He peered out through the leaves.

The mounted man was old and evidently tired from the long day's hunt. He swayed a little in his saddle, then recovered and looked about him, fumbling at his side for his horn. His mount raised its head and beat a forefoot against the ground. The heavy foot made a deep, thumping noise and leaves rustled and rose in a small cloud.

Flor sighed and started forward reluctantly. It was the Earl, himself. It might be possible to hide from

another, but Flor knew better than to try to conceal his presence from the old nobleman. The Earl could detect any person in his vicinity, merely by their thoughts, as Flor well knew from past experience. He also knew how severe the punishment would be if he failed to present himself immediately. He pushed a branch aside with a loud rustle.

Startled by the noise, a *bussa*, which had been hiding beneath a nearby bush, raced into the open. The small animal dashed madly toward the Earl, slid wildly almost under the charger's feet, and put on a fresh burst of speed, to disappear into the underbrush. The huge beast flinched away, then reared wildly, dashing his rider's head against a tree limb.

The elderly man slipped in his saddle, reached shakily for his belt, missed, and lost his seat, to crash heavily to the ground.

Flor rushed from his thicket. With the shock of the fall, the Earl's coronet had become dislodged from his head and lay a short distance from the inert form. Flor picked it up, turning it in his hands and looking at it.

Curiously, he examined the golden circlet, noting the tiny bosses inset in the band. Many times, he had watched from a dark corner at the hunting lodge, neglecting his scullery duties, while the Earl showed the powers of this coronet to his elder son. Sometimes, he had been caught by the very powers the circlet gave to the old nobleman, and he winced

as he remembered the strong arm of the kitchen master, and the skill with which he wielded a strap. But on other occasions, the Earl had been so engrossed in explaining the device as to neglect the presence of the eavesdropper.

He had told of the ability given him to read the thoughts of others, and even to strongly influence their actions. And Flor had gone back to his labors, to dream of what he would do if he, rather than the Earl, were the possessor of the powerful talisman.

And now, he had it in his hands.

A daring idea occurred to him, and he looked around furtively. He was alone with the Earl. The old man was breathing stertorously, his mouth wide open. His face was darkening, and the heavy jowls were becoming purple. Obviously, he was capable of little violence.

In sudden decision, Flor knelt beside the body. His hand, holding the short club above the Earl's throat, trembled uncontrollably. He wanted to act—had to act now—but his fear made him nauseated and weak. For a moment, his head seemed to expand and to lighten as he realized the enormity of his intent. This was one of the great nobles of the land, not some mere animal.

The heavily lidded eyes beneath him fluttered, started to open.

With a sob of effort, Flor dashed his club downward, as though striking a *bussa*. The Earl shivered convulsively, choked raspingly, and was suddenly limp and still. The labored breath-

ing stopped and his eyes opened reluctantly, to fix Flor with a blank stare.

The serf leaped back, then hovered over the body, club poised to strike again. But the old man was really dead. Flor shook his head. Men, he thought in sudden contempt, died easily. It was not so with the *busa*, or the *khada*, who struggled madly for life, often attacking their killer and wounding him during their last efforts.

Flor consigned this bit of philosophy to his memory for future use and set to work removing the heavy belt worn by the Earl. This, he knew, was another potent talisman, which could guard its wearer from physical harm when its bosses were pushed.

The murderer smiled sardonically. It was well for him that the old nobleman had failed to press those bosses, otherwise this opportunity probably would never have been presented. He stood up, holding the belt in his hand. Such a thing as this, he told himself, could make him a great man.

He examined the belt, noting the long metal case, with its engraving and its bosses. At last, he grunted and fastened it about his own waist. He pressed the bosses, then threw himself against a tree.

Something slowed his fall, and he seemed to be falling on a soft mat. He caught his balance and rested against the tree, nodding in satisfaction. Later, he could experiment further, but now he had other things to do.

He examined the coronet again, remembering that there was something about its bosses, too. He looked closely at them, then pressed. One boss slid a little under his finger and he felt a faint, unfamiliar sense of awareness.

He put the coronet on his head and shuddered a little as the awareness increased to an almost painful intensity. The forest was somehow more clear to him than it had ever been. He seemed to understand many things which he had heard or experienced, but which had been vague before. And memory crowded upon him. He stood still, looking around.

At the edge of his mind was vague, uneasy wonder, obviously not his own thought. There was a dim caricature of himself standing over the body of the Earl. And there was a feeling of the need to do something without understanding of what was to be done, or why.

He could remember clearly now, the Earl's explanations of the action of the coronet. One incident stood out—a time when the old man, having overindulged in the local wine, had demonstrated his ability to divine the thoughts of others. Flor twitched a little in painful recollection. The kitchen master had been especially enthusiastic in his use of the strap that night.

The Earl's mount was eying Flor, who realized without knowing just how, that the vague images and rudimentary thoughts were a reflection of the beast's mind. He looked over at the thicket into which the little ani-

mal which had started the charger, was hiding. It was still there, and he could feel a sense of fearful wonder, a desire to be gone, coupled with a fear of being discovered.

Again, he looked about the woods. In a way, the *bussi* and he were akin. It would be bad if he were caught here, too. To be sure, he would be hard to capture, with his new protection, but many men would hunt him. And some of them would be other Earls, or possibly some of the great abbots, who had their own coronets and belts, and possibly other things of great power. These, he knew, might be too much for him. He slunk into the thicket, looked down the hill, and decided on a course which would avoid the paths of the foresters.

As he walked, he plotted methods of using his new-found powers. He considered idea after idea—then discarded them and sought further. With his new awareness, he could see flaws in plans which would have seemed perfect to him only a few short hours before.

First, he realized he would have to learn to control his new powers. He would have to learn the ways of the nobility, their manners and their customs. And he would have to find a disguise which would allow him to move about the land. Serfs were too likely to be questioned by the first passer-by who noticed them. Serfs belonged on the land—part of it!

He hid in the bushes at the side of a path as a group of free swordsmen went by. As he watched them, a plan

came to him. He examined it carefully, finally deciding it would do.

The man-at-arms sauntered through the forest, swaying a little as he walked. He sang in a gravelly voice, pausing now and then to remember a new verse.

Flor watched him as he approached, allowing the man's thoughts to enter his own consciousness. They were none too complicated. The man was a free swordsman, his sword unemployed at the moment. He still had sufficient money to enjoy the forest houses for a time, then he would seek service with the Earl of Konewar, who was rumored to be planning a campaign.

The man swayed closer, finally noticing Flor. He paused in mid stride, eying the escaped serf up and down.

"Now, here's something strange indeed," he mused. He looked closely at Flor's face.

"Tell me, my fellow, tell me this: How is it you wear the belt and coronet of a great noble, and yet have no other garment than the shift of a serf?"

As Flor looked at him insolently, he drew his sword.

"Come," he demanded impatiently, "I must have answer, else I take you to a provost. Possibly his way of finding your secret would be to your liking, eh?"

Flor drew a deep breath and waited. Here was the final test of his new device. He had experimented, finding that even the charge of a *khada* was harmless to him. Now, he

would find if a sword could be rendered harmless. At the approach of the man, he had pressed the boss on his belt. The man seemed suddenly a little uncertain, so Flor spoke.

"Why, who are you," he demanded haughtily, "to question the doings of your betters? Away with you, before I spit you with your own sword."

The man shook his head, smiling sarcastically. "Hah!" he said, approaching Flor. "I know that accent. It stinks of the scullery. Tell me, Serf, where did you steal that—"

He broke off, climaxing his question with an abrupt swing of the sword. Then, he fell back in surprise. Flor had thrust a hand out to ward off the blow, and the sword had been thrown back violently. The rebound tore it from its amazed owner's hand, and it thudded to the ground. The man-at-arms looked at it stupidly.

Flor sprang aside, scooping up the weapon before the man could recover.

"Now," he cried, "stand quite still. I shall have business with you."

The expression on the man's face told of something more than mere surprise which held him quiet. Here was proof of the powers of the coronet. Flor looked savagely at his captive.

"Take off your cap."

Reluctantly, the man's hand came up. He removed his steel cap, holding it in his hand as he faced his captor.

"That is fine." Flor pressed his advantage. "Now, your garments. Off with them!"

The swordsman was nearly his size.

Both of them had the heavy build of their mountain stock, and the garments of the free swordsman would do for Flor's purpose, even though they might not fit him perfectly. Who expected one of these roving soldiers of fortune to be dressed in the height of style? They were fighters, not models to show off the tailor's art.

Flor watched as his prisoner started to disrobe, then pulled off his own single garment, carefully guiding it through the belt at his waist, so as not to disturb the talisman's powers.

He threw the long shirt at the man before him.

"Here," he ordered. "Put this on."

He sensed a feeling of deep resentment—of hopeless rebellion. He repeated his demand, more emphatically.

"Put it on, I say!"

As the man stood before him, dressed in the rough shift of a serf, Flor smiled grimly.

"And now," he said, "none will worry too much about a mere serf, or look too closely into his fate. Here."

He slashed out with the sword, awkwardly, but effectively.

"I shall have to find a new name," he told himself as he dressed in the garments of his victim. "No free swordsman would have a name like Flor. They all have two names."

He thought of the names he had heard used by the guards of the Earl. Flor, he thought, could be part of a name. But one of the swordsmen would make it Floran, or possibly Florel. They would be hunters, or



slayers of elk—not simply elk. He looked at the steel cap in his hands. An iron hat—*deri kuna*.

"So," he told himself, "I shall be Florel Derikuna."

He inspected his new garments, being sure they hid the belt, and yet left the bosses available to easy reach. At last, he put on the iron cap. It covered the coronet, effectively hiding it.

Taking up the sword, he replaced it in its scabbard and swaggered through the forest, imitating the man-at-arms' song.

At one stroke, he had improved his status infinitely. Now, he could roam the land unquestioned, so long as he had money. He smiled to himself. There was money in his scrip, and there would be but slight problems involved in getting more. Tonight, he

would sleep in a forest house, instead of huddling in a thicket.

As the days passed, to grow into weeks and then months, Florel wandered over the land. Sometimes, he took service with a captain, who would engage in a campaign. Sometimes, he took service with one of the lesser nobility. A few times, he ran with the bands of the forest and road, to rob travelers. But he was cautious to avoid the great Earls, realizing the danger of detection.

Always, he kept his direction to the east, knowing that he would have to reach the sea and cross to the eastern land before he could feel completely safe. His store of money and of goods grew, and he hoarded it against the time when he would use it.

Sometimes, he posed as a merchant, traveling the land with the caravans. But always, he followed his path eastward.

Florel Derikuna looked back at the line of pack animals. It had been a long trip, and a hard one. He smiled grimly to himself as he remembered the last robber attack. For a time, he had thought the caravan guard was going to be overwhelmed. He might have had to join with the robbers, as he had done before. And that would have delayed his plans. He looked ahead again, toward the hill, crowned with its great, stone castle.

This, then, was the land of the east—the farthest march of the land of the east. It had taken him a long,

cautious time to get here. And he had spent his days in fear of a searching party from Budorn, even when he had reached the seacoast itself. But here, he would be safe. None from this land had ever been even to the mountainous backbone of his own land, he was sure. And certainly, there would be no travelers who had guided their steps from here to faraway Budorn and back.

None here knew Budorn, excepting him. Flor, the serf—now Florel Derikuna, swordsman at large—was in a new land. And he would take a new, more useful identity. He looked at the stone buildings of the town and its castle.

They were not unlike the castles and towns of his native land, he thought. There were differences, of course, but only in the small things. And he had gotten used to those by now. He had even managed to learn the peculiar language of the country. He smiled again. That coronet he always wore beneath his steel cap had served him well. It had more powers than he had dreamed of when he had first held it in his hands in those distant woods.

Here in Dweros, he thought, he could complete his change. Here, he could take service with the Duke as a young man of noble blood, once afflicted with a restless urge for travel, but now ready to establish himself. By now, he had learned to act. It had not been for nothing that he had carefully studied the ways of the nobility.

The caravan clattered through the

gate beneath the castle, twisted through the streets just beyond the wall, and stopped in the market place. Derikuna urged his mount ahead and confronted the merchant.

"Here is my destination," he said. "So, we'll settle up, and I'll be on my way."

The merchant looked at him with a certain amount of relief. The man, he knew, was a tough fighter. His efforts had been largely the cause of the failure of bandits to capture the caravan only a few days before. But there was something about him that repelled. He was a man to be feared, not liked. Somehow, the merchant felt he was well rid of this guard, despite his demonstrated ability. He reached into his clothing and produced two bags.

"We hate to lose you, Derikuna," he dissembled. "Here is your normal wage." He held out one bag. "And this second purse is a present, in memory of your gallant defense of the caravan."

Derikuna smiled sardonically. "Thank you," he said, "and good trading." He reined away.

He had caught the semi-fearful thoughts. Well, that was nothing unusual. Everybody became fearful of the iron hat sooner or later. Here, they would learn to respect him, too. Though their respect would be for a different name. Nor would they be able to deny him aught. They might not like him. That, he had no interest in. They'd do his will. And they'd never forget him.

He rode to an inn, where he

ordered food and lodging. His meal over, he saw to his beasts, then had a servant take his baggage to his room.

Shortly after daybreak, he awoke. He blinked at the light, stirred restlessly, and got out of bed. Rubbing his eyes, he walked to the other side of the room.

For a few minutes, he looked at the trough in the floor and the water bucket standing near it. At last, he shrugged and started splashing water over himself. This morning, he spent more time than usual, being sure that no vestige of beard was left on his face, and that he was perfectly clean. He completed his bath by dashing perfumed water over his entire body.

He opened his traveling chest, picking out clothing he had worn but few times, and those in private. At last, he examined his reflection in a mirror, and nodded in satisfaction.

"Truly," he told himself, "a fine example of western nobility."

He picked out a few expensive ornaments from his chest, then locked it again and left the inn.

He guided his mount through the narrow streets to the castle gate, where he confronted a sleepy, heavily-armed sentry.

"Send word to the castle steward," he ordered, throwing his riding cloak back, "that Florel, younger son of the Earl of Konewar, would pay his respects to your master, the Duke of Dwerostel."

The man eyed him for a moment,

then straightened and grounded his pike with a crash.

"It shall be done, sir." He turned and struck a gong.

A guard officer came through the tunnel under the wall. For a moment, he looked doubtful, then he spoke respectfully and ushered Derikuna through the inner court to a small apartment, where he turned him over to a steward.

"You wish audience with His Excellency?"

"I do, My Man. I wish to pay him my respects, and those of my father, the Earl of Konewar." Derikuna looked haughtily at the man.

Like the guard officer, the steward seemed doubtful. For a few seconds, he seemed about to demur. Then, he bowed respectfully.

"Very well, sir." With a final, curious glance at the coronet which shone in Florel's hair, the steward clapped his hands. A page hurried into the room and bowed.

"Your orders, sir?"

"We have a noble guest. Bring refreshment, at once." The steward waved to a table. "If Your Honor will wait here?"

Florel inclined his head, strode to a chair, and sat down. He looked amusedly after the disappearing steward. The coronet of the old Earl, he thought, was a truly potent talisman. Even the disdainful stewards of castles bowed to its force. And, thought the impostor, so would his master—when the time came.

The page reappeared with a flagon

of wine and some cakes. Florel was sampling them when the steward returned. The man bowed respectfully, waited for Florel to finish his wine, and led the way through a corridor to a heavy pair of doors, which he swung open.

"Florel, Son of Konewar," he announced ceremoniously.

The Duke flipped a bone to one of his dogs, shoved his plate aside, and looked up. Florel walked forward a few paces, stopped, and bowed low.

"Your Excellency."

As he straightened, he realized that he was the object of an intense scrutiny. At last, the Duke nodded.

"We had no notice of your coming."

Florel smiled. "I have been traveling alone, Excellency, and incognito. For some years, I have been wandering, to satisfy my desire to see the world." He glanced down at his clothing.

"I arrived in your town last evening, and delayed only to make myself presentable before appearing to pay my respects."

"Very good. Punctuality in meeting social obligations is a mark of good breeding." The Duke eyed Florel's costume.

"Tell me, young man, do all your nobility affect the insignia you wear?"

Florel's hand rose to his coronet. "Only members of the older families, Excellency."

"I see." The nobleman nodded thoughtfully. "We have heard rumors of your fashions in dress, though no member of any of the great families

of your realm has ever come so far before. We are somewhat isolated here." He looked sharply at the younger man.

"Rumor also has it that this is more than mere insignia you wear. I have heard it said that your ornaments give more than mortal powers to their wearer. Is this true?"

Florel hesitated for an instant, then recognized the desired response. Of course this eastern noble would not welcome the thought that there were others who had greater powers than he. And he would certainly resent any suggestions that a young visitor to his court had such powers.

"Oh, that," he said easily. "Legends, really. The truth is that the wearing of the coronet and belt is restricted to members of the older, more honorable families. And even these must prove their ability at arms and statecraft before being invested with the insignia. Too, knowledge of long lineage and gentle birth makes a man more bold—possibly even more skillful than the average." He smiled ingratiatingly.

"You, yourself, recognize your own superiority in all ways over your retainers, your vassals, and your townspeople. And so are we above the common man. This insignia is but the outward symbol of that superiority."

The Duke nodded, satisfied. He waved a hand.

"Sit down, young man. You must remain at our court for a time. We are hungry for news of the distant lands."

Florel congratulated himself. Well

embellished gossip, he had found, was a popular form of entertainment in camp and court alike, and his store of gossip was large and carefully gathered. Here at Dweros, far from the center of the kingdom, his store of tales would last for a long time—probably as long as he needed.

During the days and nights that followed, he exerted himself to gain the favor of the Duke and his household. Much of his time, he spent entertaining others with his tales. But he kept his own ears and eyes open. He became a constant visitor at the castle, finally being offered the use of one of the small apartments, which he graciously accepted. And, of course, he was invited to join the hunts.

Hunting, he discovered, could be a pleasant pastime—so long as it was another who was doing the hard work of beating. And his own experience as a beater proved valuable. He was familiar with the ways and the haunts of animals. What had once been a matter of survival became a road to acclaim. He was known before long as a skillful, daring hunter.

At length, he decided the time was right to talk to the Duke of more serious things. The duchy was at the very border of the kingdom. To the north lay territory occupied only by barbaric tribes, who frequently descended on the northern baronies, to rob travelers of their goods, or to loot villages. Having secured their loot, the tribesmen retreated to their

mountains before a fighting force could come up with them.

Florel came upon the Duke while he was considering the news of one of these raids.

"Your Excellency, these border raids could be halted. A strong hand is all that is needed, at the right place. A determined knight, established on the Menstal, could command the river crossing and the pass, thus preventing either entry or exit."

"To be sure." The Duke sighed wearily. "But the mountains of Menstal are inhospitable. Knights have occupied the heights, protecting the border for a time, to be sure, but the land has always escheated to the duchy. A small watchtower is kept manned even now, but it's a hungry land, and one which would drain even a baron's funds. I have no knight who wants it."

Florel smiled. He had plans concerning the Menstal, and the great river, the Nalen, which raced between high cliffs.

"The merchants, who use the Nalen for their shipments, would welcome protection from the robber bands, I think, as would the travelers of the roads."

"And?" The Duke looked at him thoughtfully.

"Possibly a small tax?" Florel smiled deprecatingly. "Sufficient to maintain a garrison?"

"And who would collect the tax?"

"That, Excellency, I could arrange. I have funds, adequate to garrison the tower of the Menstal, and even to make it livable for a considerable

force of men. And I believe I could maintain and increase a garrison there that would serve to hold the barbarians at bay."

"Let me think this over." The Duke sat back, toying with his cup. "It is true," he mused, "that Menstal is the key to the border. And the small garrison there has proved expensive and ineffective." He tapped the cup on the table, then set it down and looked about the apartment. Finally, he looked up at Florel.

"You have our permission to try your scheme," he decided. "We will invest you with the barony of Menstal."

Konar paused at the castle gate. It had been pure chance, he knew, that they had noticed this bit of equipment. The east coast earldom was known, of course, but somehow, searchers had failed to discover that the Earl held any equipment. Konar shrugged. He probably hadn't inherited it, but had gotten it by chance, and his possession of the mentacom and shield weren't commonly known.

"Well," he told himself, "we know about it now. I'll make a routine pick-up, and he won't have it any more."

A pair of weary sentries stood just inside the heavy doors. One shifted his weight, to lean partially on his pike, partially against the stonework. Idly, he looked out at the road which led through the village, staring directly through the place where Konar stood.

Konar smiled to himself. "Good thing I've got my body shield modu-

lated for full refraction," he told himself. "He'd be a little startled if he should see me."

The sentry yawned and relaxed still more, sliding down a little, till he sat on a slightly protruding stone. His companion looked over at him.

"Old Marnio sees you like that," he muttered warningly, "makes lashes."

The other yawned again. "No matter. He'll be drowsing inside, where it's warm. Be a long time before he comes out to relieve."

Konar nodded amusedly. The castle guard, he gathered, was a little less than perfectly alert. This would be simple. He touched the controls of his body shield to raise himself a few inches above the cobblestones, and floated between the two sentries, going slowly to avoid making a breeze.

Once inside, he decided to waste no more time. Of course, he would have to wait inside the Earl's sleeping room till the man slept, but there was no point in waiting out here. He passed rapidly through the outer ward, ignoring the serfs and retainers who walked between the dwellings nestled against the wall.

The inner gate had been closed for the night, so he lifted and went over the wall.

He looked around, deciding that the Earl's living quarters would be in the wooden building at the head of the inner courtyard. As he approached, he frowned. The windows were tightly closed against the night air. He would have to enter through the doors, and a young squire blocked

that way. The lad was talking to a girl.

There was nothing to do but wait, so Konar poised himself a few feet from them. They'd go inside eventually, and he would float in after them. Then, he could wait until the Earl was asleep.

After that, it would be a simple, practiced routine. The small hand weapon he carried would render the obsolete body shield ineffective, if necessary, and a light charge would assure that the man wouldn't awaken. It would be the work of a few minutes to remove the equipment the man had, to substitute the purely ornamental insignia, and to sweep out of the room, closing the window after him. Konar hoped it would stay closed. The Earl might be annoyed if it flew open, to expose him to the dreaded night air.

In the morning, the Earl would waken, innocent of any knowledge of his visitor. He would assume his talismans had simply lost their powers due to some occult reason, as many others had during recent times.

Idly, Konar listened to the conversation of the two before him.

The squire was telling the girl of his prowess in the hunt. Tomorrow, he announced, he would accompany the Earl's honored guest from the eastern land.

"And I'm the one that can show him the best coverts," he boasted. "His Grace did well to assign me to the Duke."

The girl lifted her chin disdain-

fully. "Since you're such a great hunter," she told him, "perchance you could find my brooch, which I lost in yonder garden." She turned to point at the flower-bordered patch of berry bushes at the other end of the court. In so doing, she faced directly toward Konar.

She was a pretty girl, he thought. His respect for the young squire's judgment grew. Any man would admire the slender, well featured face which was framed within a soft cloud of dark, well combed hair. She looked quite different from the usual girls one saw in this country. Possibly, she was of eastern descent, Konar thought.

The girl's eyes widened and her mouth flew open, making her face grotesquely gaunt. Abruptly, she was most unpretty. For a few heartbeats, she stood rigidly, staring at Konar. Then she put her hands to her face, her fingers making a rumpled mess of her hair. Her eyes, fixed and with staring pupils, peered between her fingers. And she screamed.

Konar felt suddenly faint, as though the girl's horror was somehow communicated to him. The scream reverberated through his brain, rising in an intolerable crescendo, blotting out other sensory perception. He fought to regain control of his fading senses, but the castle court blurred and he felt himself slipping into unconsciousness. He started sliding down an endless, dark chute, ending in impenetrable blackness.

Suddenly, the black dissolved into

a flash of unbearably brilliant light, and Konar's eyes closed tightly.

He was alertly conscious again, but his head ached, and he felt reluctant, even unable, to open his eyes. Even closed, they ached from the brilliant spots which snapped into being before them. He shuddered, bringing his head down to his breast, gripping it with shaking hands, and breathing with uneven effort.

This was like nothing he had ever met before. He would have to get back to the others—find out what had happened to him—get help.

He concentrated on his eyelids, forcing them open. A crowd was gathering, to look accusingly at the squire, who supported the fainting girl in his arms. Her eyes fluttered weakly, and she struggled to regain her feet.

"That awful thing! It's right over there!" She pointed at Konar.

Again, the unbearable ululation swept through his mind. Convulsively, he swept his hand to his shield controls, fighting to remain conscious just long enough to set his course up and away.

Before he was able to move and think with anything approaching normality, he was far above the earth. He looked at the tiny castle far below, noticing that from his altitude, it looked like some child's toy, set on a sand hill, with bits of moss strewed about to make a realistic picture. He shivered. His head still ached dullly, and he could still hear echoes of the horrified screaming.

"I don't know what it was," he

told himself, "but I hope I never run into anything like that again."

He located the hill which concealed the flier, and dropped rapidly toward it.

As he entered, the pilot noticed him.

"Well, that was a quick mission," he commented. "How'd you—" He looked at Konar's pain-lined face. "Hey, what's the matter, youngster? You look like the last end of a bad week."

Konar tried to smile, but it didn't work very well.

"I ran into something, Barskor," he said. "Didn't complete my mission. I don't know what happened, but I hope it never happens again."

Barskor looked at him curiously, then turned. "Chief," he called, "something's gone wrong. Konar's been hurt."

Meinora listened to Konar's story, then shook his head unhappily.

"You ran into a transvisor, I'm afraid. We didn't think there were any on this planet." He paused. "There were definitely none discovered to the west, and we looked for them. But now, we're close to the east coast, and you said that girl looked eastern. The eastern continent may be loaded with 'em."

Konar looked curious. "A transvisor? I never heard of them."

"They're rather rare. You only find them under special conditions, and those conditions, we thought, are absent here. But when you find one, you can be sure there are more. It runs in

families. You see, they're beings with a completely wild talent. They can be any age, any species, or of any intelligence, but they're nearly always female. Visibility refraction just doesn't work right for their senses, and they can cause trouble." He looked closely at Konar.

"You were lucky to get away. A really terrified transvisor could kill you, just as surely as a heavy caliber blaster."

Konar shivered. "I believe it. But why are they called 'transvisors'?"

"The name's somewhat descriptive, even if it is incomplete. As I said, visibility refraction doesn't work right in their case. Somehow, they pick up visual sensation right through a screen, regardless of its adjustment. But things seen through a screen are distorted, and look abnormal to them. Unless they're used to it, they get frightened when they see a person with a refracted body shield. That's when the trouble starts."

Konar nodded in understanding. "You mean, they transmit their fear?"

"They do. And they'll shock excite a mentacom, completely distorting its wave pattern. If they remain conscious and scared, their fear is deadly to its object." Meinora drew a deep breath.

"As I said, you were lucky. The girl fainted and let you get away." He shrugged and turned to Barskor.

"We'll have to change our mode of operation," he added. "We'll pick up the Earl's mentacom and belt at the hunt tomorrow. Find him alone,

knock him out with a paralyzer, and give him parahypnosis afterward. It's not so good, but it's effective. But be sure you are alone, and don't try to use visual refraction under any circumstance. Be better to be seen, if it comes to that. There might be another transvisor around." He kicked gently at the seat beside him.

"This was just a secondary job, done in passing," he said, "but it's a good thing we found this out when we did. It'll change our whole primary plan. Now, we'll have to slog it out the hard way. On no account can anyone refract. It might be suicide. We'll have to talk to travelers. We want to know what abnormal or unusual developments have taken place in what country in the last twenty years. Then, we'll have to check them out. We've got a lot of work to do." He looked around. "Ciernar."

"Yes, sir?" The communications operator looked up.

"Send in a report on this to Group. Make it 'operational.'"

Konar tilted his head a little. "Say,



chief, you said the transvisor's fear was amplified by my mentacom. What if I wasn't wearing one?"

"You wouldn't feel a thing," Meinora smiled. "But don't get any ideas. Without amplification, you couldn't control your shield properly. You'd have protection, but your refraction control's entirely mental, and levitation direction depends on mental, not physical control, remember?"

"But how about you? You don't use amplification. Neither do several of the other team chiefs."

Meinora shrugged. "No," he admitted, "we don't need it, except in abnormal circumstances. But we don't go around scaring transvisors. They can't kill us, but they can make us pretty sick. You see we're a little sensitive in some ways." He shook his head. "No, the only advantage I've got is that I can spot a transvisor by her mental pattern—if I get close enough. There's a little side radiation that can be detected, though it won't pass an amplifier. When you've felt it once, you'll never forget it. Makes you uncomfortable." He smiled wryly.

"And you can believe me," he added, "when I do get close to a transvisor, I'm very, very careful not to frighten her."

Winter passed, and spring, and summer came. Nal Gerda, Officer of the Guard, stood on the small wharf below the old watchtower. He looked across the narrows, examined the cliff opposite him, then looked upward at the luminous sky. There were a few small clouds, whose fleecy whiteness

accentuated the clear blue about them. Brilliant sunshine bathed the wharf and tower, driving away the night mists.

It would not be long before the new guard came down the cliff. Gerda stretched and drew a deep breath, savoring the summer morning air. Now, it was pleasant, a happy contrast to the sullen skies and biting winter winds he had faced a few short months ago.

For a time, he looked at the green atop the cliffs, then he transferred his attention upriver, toward the bend where the Nalen came out of the pass to blow between the iron cliffs of Menstal. The water flowed swiftly in the narrows, throwing off white glints as its ripples caught the sunlight, then deepening to a dark blue where it came into the shadow of the cliffs.

A sudden call sounded from the lookout far above, and the officer wheeled about, looking to the great chain which stretched from tower to cliff, to block river traffic. It was in proper position, and Gerda looked back at the bend.

As he watched, a long, low barge drifted into sight, picking up speed as it came into the rapid current. Polemen* balanced themselves alertly in the bow, their long sticks poised to deflect their course from any threatening rocks.

Gerda threw off the almost poetical admiration of beauty that had possessed him a moment before and faced the guard house, from whence came a scuffle of feet and the clank

of arms, to tell of the guard's readiness.

"Turn out the Guard." Gerda drew himself up into a commanding pose.

A group of men-at-arms marched stiffly out, followed by a pair of serfs. The leader saluted Gerda with upraised hand.

"The Guard is ready, My Captain," he proclaimed. "May the tax be rich."

Gerda returned the salute. "It will be," he stated positively. "These merchants have learned by now that to insult Portal Menstal with poor offerings is unwise in the extreme. And, mark me, they'll not forget!"

The barge approached and swung in toward the wharf in obedience to Gerda's imperious gesture. One of the polemen jumped ashore, securing a line to a bollard.

The steersman climbed to the dock, to halt a pace in front of Gerda. He folded his hands and bowed his head submissively.

"Does Your Honor desire to inspect the cargo?"

"Of course." Gerda's haughty glance appraised the man from toe to crown. "Quickly now, I've little time to waste." He glanced back at his clerk, who had a tablet ready.

"Your name, Merchant?"

"Teron, of Krongert, may it please you, sir. I have been to—"

Gerda waved an impatient hand. "Save me your speech, Higgler," he said curtly. "What's your cargo value?"

"Six thousand teloa, Your Honor. We have—"

"Unload it, I'll look at it." Gerda waved the man to silence.

As the bales of goods were placed on the wharf, Gerda examined them critically. A few, he ordered set aside after a quick check and a few questions. Others, he ordered opened and spread out. At last, satisfied with his estimate of the cargo's valuation, he turned.

"Your choice, Merchant?"

"I would pay, Your Honor," said the man, "to the tenth part of my cargo." He extended a leather bag.

"Don't haggle with me," snapped Gerda. "The tax is a fifth of your cargo, as you should well know." His hand sought his sword hilt.

The merchant's face fell a little, and he produced a second bag, which he held out to the officer. "I must apologize," he said. "I am new to this land."

"See that you learn its customs quickly, then." Gerda handed the bags to his clerk.

"Check these, Lor," he ordered. "I make it a thousand, six hundred teloa."

An expression of dismay crossed the merchant's face.

"Your Honor," he wailed, "my cargo is of but six thousand valuation. I swear it."

Gerda stepped forward swiftly. His hand raised, to swing in a violent, back-handed arc, his heavy rings furrowing the merchant's face. The man staggered back, involuntarily raising a hand to his injured cheek.

As a couple of the men-at-arms

raised their pikes to the ready, the merchant righted himself, folded his hands again, and bowed in obeisance. Blood trickled down his chin, a drop spattering on his clothing. He ignored it.

"You would dispute my judgment?" Gerda drew his hand up for a second blow. "Here is no market place for your sharp bargaining. For your insolence, another five hundred talents will be exacted. Make speed!"

The merchant shook his head dazedly, but offered no word of protest. Silently, he dug into his possessions, to produce a third bag. For a moment, he weighed it in his hand, then reached into it, to remove a few loose coins. Without raising his head, he extended the bag to the officer of the guard.

Gerda turned. Lor had gone into the guard house, to count the other two bags. The officer raised his voice.

"Lor, get back out here. I've more for you to count."

He tossed the bag to the clerk, then stood, glaring at the unfortunate trader. At last, he kicked the nearest bale.

"Well," he growled, "get this stuff off the wharf. What are you waiting for?"

He watched the barge crew load, then turned. Lor came from the guard house.

"All is in order, My Captain."

"Very well." Gerda looked at him approvingly. Then, he swung to the merchant, fixing him with a stern glare.

"We shall make note of your

name, Merchant. See thou that you make honest and accurate valuation in the future. Another time, we shall not be so lenient. The dungeon of Menstral is no pleasant place."

He watched till the last of the bargeload was stowed, then nodded curtly.

"You may shove off," he said. He turned his head toward the tower.

"Down chain," he ordered loudly.

The windlass creaked protestingly and the heavy chain dropped slowly into the river. The barge steered to the center of the channel, gathering speed as it passed over the lowered chain.

When the barge had cleared, serfs inside the tower strained at the windlass in obedience to the commands of their overseer, and the chain rose jerkily, to regain its former position across the stream.

Gerda watched for a moment, then strode toward the guard house. He went inside, to look at the bags of coin on the counting table.

"Cattle," he growled, "to think they could cheat the Baron Bel Menstral of his just tax."

He stepped back out for a moment, to watch the merchant barge enter the rapids beyond the chain. Then, he swung about and re-entered the tower.

Inside, he sat down at his counting table. He opened the bags, spilling their contents out on the boards, and checked their count.

There were forty-eight over.

He turned to his clerk.

"What was your count, Lor?"

"Two thousand, one hundred, sir, and forty-eight."

"Very good." Gerda smiled a little. "For once in his thieving life, the merchant was anxious to give full weight."

Lor spread his hands. "He'll get it back, and more, at Orieano, sir."

"Oh, to be sure." Gerda shrugged indifferently as he scooped the coins back into the bags. He chose three small scraps of wood, scrawled tally marks on them, and went over to a heavy chest.

Taking a key from his belt, he unlocked the chest and raised its lid. He looked at the bags lying within, then tossed the new ones on top of them. As he locked the chest again, he saw Lor go to his account board, to enter the new collection.

The Officer of the Guard straightened, stretched for a moment, then glanced critically in at the windlass room. The serfs had secured the windlass and racked their poles. Now, they were sitting, hunched against the wall, staring vacantly, in the manner of serfs. The guardroom, its commander noted, was properly clean. He shrugged and walked out again to the wharf. Once more, he looked at the iron cliffs opposite him, then glanced downriver. The merchant barge had disappeared.

Beyond Menstal, the cliffs closed in still farther, to become more rugged and to form a narrow gorge. Between them, the Nalen took a tortuous course, turbulently fighting its

way over the rocks. Eventually, it would drop into the lowlands, to become a broad, placid river, flowing quietly under the sunshine to water the fields of Orieano. But during its passage through the mountains, it would remain a dark, brawling torrent.

The merchant barge swept through the rapids just beyond Menstal, her polemen deftly preventing disaster against the rocks. At last, as the gorge became a little wider, the steersman guided his course toward a small beach beneath the cliffs. With his free hand, he thoughtfully rubbed his injured cheek.

As the boat's keel grated against gravel, he shook his head and stepped forward. For a moment, he fumbled under a thwart, then he brought out a small case.

"Konar," he called, "fix this thing up for me, will you?" He opened the case and laid it on the thwart.

One of the polemen laid his stick down and came aft.

"Pretty nasty clip, wasn't it, sir?"

Meinora grinned. "Guy's got a heavy hand, all right," he admitted. "Made me dizzy for a second. Almost got mad at him."

Konar raised an eyebrow. "I felt it," he said. "Good thing Ciernar and I backed you up a little. Wouldn't help us much to knock out the baron's river detachment right now, would it?" He reached into the case.

"Looks as though the merchants weren't exaggerating, if you ask me," he added. He approached Meinora, a small swab in his hand.

"Hold still, sir," he instructed. "This'll sting for a few seconds." He dabbed at the cut cheek, then reached back into the case for an instrument.

"Ouch!" Meinora winced. "Did you have to use that stuff full strength? After all, I can wait a couple of hours for it to heal." He shook his head as his companion turned back toward him, then dashed involuntary tears from his eyes and blinked a few times to clear his vision.

"No," he added, "the merchants aren't exaggerating a bit on this one. Bel Menstral's a pretty rough customer, and he keeps rough boys. Now, we'll see whether he's the guy we've been looking for, the guy with our equipment."

Konar focused the small instrument on his superior's face, passing it along the line of the jagged cut. "You didn't explain that part."

"Simple enough." Meinora grinned wolfishly. "Those coins were a Vadris-Kendar alloy. Now that they're out of their force field, they'll start to sublimate. In a couple of hours or so, they'll be gone, and someone will be asking a lot of questions. Set up the detectors. If the baron is the boy we think he is, we should be getting a fairly strong reading shortly after that guard's relieved."

From somewhere atop the cliff, a bell tolled. The hoarse voice of the lookout drifted down to the wharf.

"Relieve the guard."

Nal Gerda looked up. A line of men were coming down the steep path, stepping cautiously as they wound about the sharp turns. Gerda nodded and walked back into the guard room.

"Draw up your guard," he ordered.

He beckoned to two of the serfs.

"Take the chest," he directed, "and stay close in front of me."

Herding the bearers before him, he went out to the wharf. His guard was drawn up in their proper station, facing upstream, so that they could view both the steps from the cliff and the river. No traffic was in sight in the long gorge.

The new guard came slowly down the trail, formed at the foot of the steps, and marched to the tower portal. Their commander dressed their ranks, motioned to his clerk, and came forward, saluting as he approached Gerda.

"Anything unusual?"

"Nothing," Gerda told him. "Seven barges, this watch. Traders are gathering for the fair at Orieano."

"I know," the other agreed. "We'll have rich collections for the rest of the summer, what with fairs all down the valley. You'll be going to the Orieano Fair?"

"Got my permission yesterday. I'm to ride with the Baron. Have to give the merchants back part of their money, you know."

"Yes, I suppose so." The other grinned, then sobered. "I'll relieve you, sir."

"Very good." Gerda saluted, then turned.

"March off the old guard," he ordered.

The men started up the steps. Gerda followed the serfs with the money chest, bringing up to the rear.

Slowly, they toiled their way up the trail, halting at the halfway point for a brief rest. At last, they were at the top of the cliff. Before them, the castle gate opened. Within the tunnellike passage through the wall, two sentries grounded their pikes.

Gerda nodded to his clerk, accepted the account tablet, and followed his serfs, who still bore the money chest, into the castle.

Inside the main counting room, his bearers set the chest on a large table. The castle steward came toward them.

"And how were collections?"

"Reasonably good, sir. Seven barges came through during the night, with good cargoes." Gerda held out the tablet.

The steward looked at it, checking off the entries. "Meron, of Vandor—Yes, he would have about that. And Borowa? A thousand?" He nodded thoughtfully. "That seems about right for him." He tapped the tablet a few times, squinting at the last name on the list. "But who is this Teron? I never heard of him. Must have had a rich cargo, too."

Gerda laughed shortly. "He's a new one to me. He tried to get away with a tenth, then protested the valuation. I fined him an extra five hundred."

"Oho!" The steward smiled thinly. "What then?"

Gerda shook his head. "Oh, he was suddenly so anxious to pay the right amount, he gave me forty-eight teloa overweight. I'll know him next time I see him, I'm sure. I marked him well for receipt."

He inspected his knuckles reflectively, then took the key from his belt and opened the chest.

"You'll want to verify my count, of course?"

"Oh, yes. Yes, to be sure. Have to be certain, you know. And there's your share of the fine and overpayment to be taken care of." The steward reached into the chest, removing bags which clinked as they were dropped to the table. He stopped, to look into the chest with a puzzled expression on his face.

"And what are these?" He reached in, to withdraw three obviously empty bags. He looked curiously at the thongs which tied their mouths, then shook them and looked questioningly at Gerda.

"Why, I . . . I don't know." Gerda looked incredulously at the bags. "Certainly, I had no extra money bags."

"I should think not." The steward frowned, then beckoned behind him. Two heavily armed guards approached.

"We'll have to examine into this."

As the guards came close to Gerda, the steward looked closely at the bags on the table, then picked one up, opening it.

"Borowa," he muttered after looking inside and comparing the tally chip with the count tablet. He weighed the bag in his hand. "Yes, it seems to be about right. Certainly not overweight." He picked up another, then still another. At last, he looked up.

"Of course, I shall have to count all of these carefully," he remarked grimly, "but I see no coin from this Teron you have listed." He stared coldly at Gerda. "And the tower lookout confirms that you had seven barges. That was a considerable amount. What did you do with that money?"

"Why, I counted it. It was all there." Gerda shook his head unbelievingly. "My count agreed with that of my clerk, and I dropped tallies in and closed the bags again." He looked uneasily at the two guards who flanked him. "Surely, you don't think I'd be so foolish as to tamper with the Baron's taxes? Think, man! I know the Baron's ways!"

"I'm not sure just what I think—yet." The steward shook his head. He picked up one of the empty bags, opened it, and gave it a shake. The small tally chip fell out and he picked it up, comparing it with the list on the tablet. Frowning thoughtfully, he opened the other two bags. More small blocks of wood fell out. He looked at the bags, then tossed them aside and looked coldly at the guard officer.

"It's witchcraft," cried Gerda. "I had nothing—"

"We'll see." The steward mo-

tioned at the two guards. "Search this man."

Dazedly, Gerda stood still, submitting as one of the guards went through his clothing while the other stood ready to deal with any resistance. The searcher made a thorough examination of Gerda's clothing, muttered to himself, and went over his search again. A pile of personal objects lay on the table when he had finished. At last, he looked at the prisoner, then faced his chief.

"He has nothing on him, sir, not even a teloa."

"So I see." The steward frowned, then looked at Gerda.

"You may reclaim your possessions now, captain. Is there any chance that your clerk might have opened the money chest?"

Gerda shook his head. "I don't see how he could, sir, unless he had a duplicate key, and that's hardly possible. I kept the chest locked at all times, and the key never left my person."

"And there is no chance that any of your men could have hidden anything on the way here?"

Again, Gerda shook his head. "None," he said positively. "I was behind them all the way, and would have seen if any had made any unusual motion."

"Very well." The steward clapped his hands sharply.

There was a clatter of arms, followed by the scuffle of feet. Across the room, a door opened and a detachment of the castle guard filed in.

Their leader stepped forward, saluting the steward.

"There is a river watch outside," he was told. "Disarm them, take them to a cell, and search them thoroughly. A considerable amount of coin has been stolen. Report to me when you have finished."

"Yes, sir." The group filed out.

The steward turned to Gerda again.

"This matter must be examined carefully," he declared. "You may have been the victim of witchcraft, of course, though I doubt it, never having witnessed such a thing. Or one of your men may have worked out a cunning method of theft, an occurrence which I have witnessed many times. Or, there's the other possibility." He stroked his chin. "After all, you were the rearmost man, and the one none other would observe."

Gerda looked at him fearfully.

"This may become a matter for the Baron's personal attention," continued the steward. He looked sharply at Gerda. "How long have you been in the Baron's service?"

"Why, you know that, sir. Ten years, ever since I—"

"Yes, yes, I remember. And you know how hopeless it is to try to deceive the Baron?"

"Yes, sir." Gerda swallowed painfully.

"But you still insist you had nothing to do with the disappearance of this money?"

Gerda spread his hands. "I can't understand it, sir. But I had nothing

to do with it myself. As I told you, we collected it, listed it, counted it, and I put it in the chest and locked it up." He shook his head again. "It's witchcraft, sir."

The steward leaned back, a slight smile playing about his lips.

"Witchcraft is good enough for serfs," he said smoothly, "but you and I are intelligent men. We have had collection money disappear before, many times. Almost always, there has been the cry, 'It's witchcraft!' And always there has been a more simple, worldly explanation." He snapped his fingers and a page hurried forward.

"A cup of wine," ordered the steward. "This questioning is thirsty work." He faced back to Gerda.

"Always," he repeated, "some explanation has been forthcoming. Usually, I have discovered the errant one—with the help of my guards, of course. And the criminal has been duly punished. But there have been some few occasions when the malefactor was so clever as to force the Baron's intervention." He paused, leaning forward a little.

"And do you know what happened then?"

Gerda's throat was becoming dry. His mouth opened, but he closed it again.

The page returned, bearing a large cup and a flagon of wine. Carefully, he filled the cup, then set it before the steward, who lifted it to his lips, drank, and set it down with a satisfied sigh.

"Thank you, boy. Here is one

thing we can produce well in these mountains." He wiped his lips and turned his gaze to Gerda again. He shook his head slowly.

"The Baron can detect guilt or innocence in a moment. For a short time, he questioned the persons brought before him. He soon determined the guilty ones, and wrung confessions from their wretched lips. We then took them away, and turned them over to the torturers." He raised the cup again.

"You know," he added, "I'm told that some of them lasted as long as ten full days." He shook his head. "I could never understand how the executioners can put up with such noise for so long. But then, I suppose one gets used to most anything."

He looked toward the door. "Strange," he murmured, "I wonder what's keeping Maro so long." He

clapped his hands sharply once more, and waited.

The page dashed to a door and disappeared within. At last, he came back, holding the door for the leader of the castle guard detachment, who came forward to salute his superior.

"Have you found anything yet?"

"Nothing, sir. We have stripped them, but they have no unusual things about them. And we have questioned them. None will admit to seeing or doing anything other than normal duties."

The steward sighed. "Very well. Secure them, then. I'll call for them later." He stood.

"Come, Nal Gerda," he ordered,



"unless you have something further to tell me of this, we must have an audience with the Baron."

Florel, Baron Bel Menstal, sat at his ease. Before him was a dish of good cakes, beside him, a cup and flagon of good wine. He looked contentedly around the apartment.

For fourteen years now, he had been lord of this castle. And for fourteen years, he had busied himself building his forces and increasing his power and influence in the duchy. He had made himself feared and respected.

During the past several years, his word had been of great weight in the Duke's councils. He was now one of the great barons of the realm. He smiled to himself.

As he had risen in importance, Oriano, the soft holder of the rich fields to the west, had fallen. The man was getting old—even older than the Duke himself, and he was tired. And his daughter was the sole heir to that barony.

Again, Menstal smiled to himself as he thought of the daughter of Oriano. Next month, at the fair, he would press suit for the hand of the heiress, and a few months after that he would have control of the rich farm lands and the trading city.

The girl would probably protest, but that would do her little good. He knew what fear could do. And he could rouse such fear as to render even strong men but helpless masses of flesh. The beauteous damsel of Oriano would be a simple task.

None other would dare dispute his claim, and the Duke would come to support him.

And the Duke himself? Ah, well, perhaps it would be as well to allow him to finish his life in peaceful possession of his broad fields. But certainly, the son of Dwerostel would have no word in the control of the duchy. An accident could be easily arranged, and Flor, one-time woods beater and scullery boy of Budorn, would become the great Duke he had long planned to be. No, it wouldn't take too many more years.

He filled himself a cup, and looked complacently into its clear depths. The tap on the door broke his reverie, and he looked up, annoyed.

He stared impatiently at his castle steward as the man entered and made obeisance.

"What now, Weron?" He set the cup down. "Must I be bothered with all your petty problems?"

"This, Excellency, is an unusual problem. A sizable tribute payment has disappeared without trace. The empty bags were left, and the culprit has—"

"Enough!" The Baron waved a hand impatiently, then adjusted his golden coronet to a more comfortable angle. For an instant, his fingers played with the ornamental bosses.

"Yes, yes, I see," he snapped. "You can spare me your mumbled details. This man is the officer of the guard?"

"Yes, Excellency." The steward motioned Gerda forward.

Bel Menstal looked sternly at his

officer. "Where did you hide your loot?" he demanded.

Gerda looked incredulously at his master. He had stolen nothing. As far as he knew, he had done nothing wrong. But he seemed to be condemned in advance. Something was insistently pressing on his brain, demanding a confession. He had nothing to confess, but the demanding pressure remained. He struggled against it, and it grew.

Admit it. How did you do it? Where is the money?

The pressure became a tearing force. Gerda swayed weakly.

"I don't know what happened," he insisted. "I told—"

The words stopped as the force became almost unbearably intense. A sudden, sharp pain tore at Gerda's throat, and blinding light seemed to strike back of his eyes. Through the glare, he dimly saw the Baron raise a hand threateningly.

"You claim to have no idea at all how the money was taken, or which of your men may have been the thief? This is not a sensible attitude."

You know something. You must know something. Tell it!

Gerda shook his head miserably, entirely unable to speak. Somehow, nothing was clear. He remembered that something had gone wrong. Somehow, he had failed his duty. But how? The room was hazy. Snatches of his last tour of duty rose to his consciousness, then were abruptly blotted out—gone. The faces of his clerk and of the men-at-

arms came out of the haze for an instant. Then, they, too, were gone.

The room seemed to spin and an irresistible force bore him to the floor. As he slowly was pressed downward, he wondered who he was—why he was here—what had happened. Then, the floor came at him with blinding speed and he ceased to wonder. The haze about him scintillated and became impenetrable darkness.

The Baron looked down at the crumpled form.

"Take this man away, Weron," he ordered. "He knew nothing." He stroked his hair. "When he recovers, assign him to some unimportant duty in the castle. Something, of course, that will demand little thought or spirit."

"And the others, Excellency?"

"Oh, bring them in, one at a time. One of them managed to make a complete fool of his officer, of course. But I'll find him."

Bel Menstral waved his hand in dismissal, then leaned back in his chair, watching as his steward directed a pair of men-at-arms. They carried the limp form from the room.

"There. That'll pick up any power radiation from the castle." Konar straightened, looking at the small panel.

"Good enough." Mcinora leaned over, checking the dials. "See you've set it for average power."

"Yes, sir. It'll give a flicker indication for low levels and it'll fail to trip for unaided thought. Not too

much chance of an overload, either."

"That's right. You're learning." Meinora nodded casually. "Well, let's keep watch on it." He sat down. "Audio alarm on?"

Konar glanced at the panel again. "I remembered it this time." He grinned, then looked curiously at his superior's cut cheek. The wound was healing nicely. In an hour or so, there would be no visible trace of the injury.

"Say, Chief," he asked, "how'd you happen to get slapped?"

"I asked for it." Meinora smiled thoughtfully.

"Yes, sir. I know that. But what was the purpose?"

"This continent has never been thoroughly checked, so we're sampling the culture. We know a lot about them now, but there's a lot we still have to know. For example, how do they react to various stimuli? And how much stimulus is necessary to produce a given action? Of course, we can't check every individual, but we can pick up a sample from each community we contact and extrapolate from them." Meinora spread his hands.

"So, I presented a minor irritation to that officer, and he reacted—fast. He didn't just slap me for effect. He was infuriated at the insult to his authority. Not only that, but his men expected him to react in just that manner. I noted that, too. He'd have lost face if he'd acted in any other way. And the men-at-arms were disappointed when we gave them no further excuse for violence. We real-

ly lost face with them. There, we have an indication that violence is the expected thing in this particular castle, which is a community of the duchy. Right?"

"Yes." Konar nodded thoughtfully. "They're not only violent themselves, but they expect violence from others. I see what you mean. You'll sample the other baronies?"

"Certainly. As many as we contact. They can tell us quite a bit. We—"

A buzzer interrupted him. Meinora snapped a switch and sat forward alertly.

A needle quivered, rose from its rest, and swung abruptly across the meter scale. With an audible ping, it slapped against the stop beyond the maximum reading.

Meinora looked sharply at the detector set, then turned a selector switch. The needle moved reluctantly away from the pin, but remained above the red line at center scale. Meinora grimaced, twisted the selector again, and adjusted another knob, till the needle came to rest at center.

He examined the dial readings, frowned incredulously, then turned.

"Look at it," he invited. "It's a wonder he hasn't burned that amplifier out. It's a heavy duty job, I know. But—"

Konar leaned over his chief's shoulder.

"What an overload! We've found it, all right. But what's going on?"

"Let's find out." Meinora flipped a switch. The two men tensed

against the resultant shock and were silent for a time. At last, Konar reached out to snap the switch off.

"Just raw, crushing force," he said wonderingly. "A ferocious demand, with no regard for facts, no consideration of mental characteristics, no thought of consequence." He shook his head slowly. "Never experienced anything just like that before."

"With the power he's using," Meinora remarked, "it's a wonder he doesn't upset every mind in his castle." He snapped the detector off.

"Including his own." Konar nodded and looked at the dial settings. "One thing's sure. This boy never had any instruction." He stepped back. "Well, we know he has it. What's the procedure?"

Meinora was frowning thoughtfully. He stroked his injured cheek, then shook his head.

"We certainly let that guard officer in for something," he mused. "Have to pick him up and give him therapy, I think." He looked at Konar. "Oh, procedure?"

"Yes, sir. Do we catch him alone and proceed as we did with the last one? That worked with no trouble."

"No, I don't think it'd work out so well in this case. If I caught it right, this one's almost never by himself outside his apartment. Likes to impress his personality on people." Meinora looked at the detector set, then around at the younger man beside him.

"You know, I got some interesting side thoughts just now. Maybe

we can do two jobs in one this time. It'll take a little longer, but it might save time in the long run."

The communications operator came over. "Not another of those?" he asked with a grin.

Meinora nodded. "I'm just dreaming up a nice, dirty trick," he admitted. "Tried something like it once before, on a smaller scale. It worked." He stood up, stretching.

"The fair's going to be on at Orieano in a little while, right?"

"Yes. Be a pretty big affair, too, I think. Why?"

"And the Duke'll be there, of course, along with most of his court and a good share of his fighting men?"

"Why, yes, sir. They tell me he's always been there. Don't suppose he'll skip it this time."

"So, it's perfect. We'll get this set of equipment in public, and with apparent legitimacy. And in the process, we'll set up social strains that'll result in this area reorienting itself." Meinora looked around with a grin.

"Look, call Barskor. Tell him to pick us up with the flier. We'll go down to the hills south of Orieano. Tell you about it on the way."

The last of the river guards was carried out, head dangling limply from the arms of one of the bearers. Bel Menstral sat back in his chair, frowning. Abruptly, he turned on his steward.

"None of them knew a thing," he snarled. "None of them. There's

something funny going on here."

The steward's face was drawn. Dizzying forces had assailed him, and he had almost collapsed several times during the questioning. He tried to gather his hazy thoughts. Too many kept coming too fast.

"Yes, Excellency," he agreed. "Maybe it *is* witchcraft."

Bel Menstral's face darkened. "Nonsense," he growled, rising part way out of his chair. "Witchcraft be damned! There's some explanation to this, and I'm going to find out what it is."

"Yes, Excellency."

The Baron looked up, then stared contemptuously at his man.

"Yes, Excellency," he mimicked in a singsong voice. "Always 'Yes, Excellency.' Haven't you an idea of your own?"

"Yes, Excellency, I—"

"Inept fool! There's an explanation to this, I tell you. And peasant superstition has no part in it. You should have found it. But no! You came, dragging a whole detachment of guards in for me to question. Me, the Baron! I have to do all the work—all the thinking. I tell you, I want men about me who can think and act."

He got out of his chair and circled the table, striding close to the steward.

"I'll give you one more chance, Weron. Go out and find what happened to that money. I don't care how you do it, and I'm not going to be bothered with your petty details. But find out where that money

has gone. Is that simple enough for you to understand?"

"Yes, Excellency." Weron backed toward the door. "I'll—"

Reckless fury shook Florel. Suddenly, he felt an irresistible craving for direct, violent action. He picked a dagger from his belt.

"You're not only a fool," he shouted, "but a spineless one, as well. I think I'll have to get another steward. A good one." He raised the dagger, then paused.

"Here, weakling. You'd like to use this, wouldn't you? But you lack the will. That's why you're a mere lackey." Abruptly, he threw the weapon at Weron.

"Try it, fool. Try it, and see how a real man protects himself."

He stalked toward the steward.

The man cringed away, then, pressed by his master, suddenly sobbed with rage. He raised the dagger. Bel Menstral, protected by his body shield, brushed the stroke aside.

"Ha!" He snatched the weapon. "You would try it?"

Weron threw his arms before him, trying to ward off the blows, then slumped as the blade sank into his flesh.

Bel Menstral struck the sagging body a few more times with the dagger, then threw the weapon on top of the inert form.

"Ho, Guards," he shouted, flinging the door open.

He went back to his chair and watched as the guards came in. In obedience to his gesture, they carried the one-time steward from the

room. The door closed, and Bel Menstal was alone. Slowly, the stimulation of the encounter faded, and he shook his head.

It had been pleasant for a few minutes, he thought, but he had solved nothing.

Could it be that searchers from his native land had at last found him? He frowned. No, they wouldn't use some devious method, even supposing they could find some way of corrupting his household. They would simply expose him and accuse him before the Duke. They'd storm his castle if necessary, to take him by force. This was something else. He would have to think. He put his elbows on the table, cupping his face in his hands.

The great market square at Orieano was crowded. Colorful tents hid most of the cobblestones, and the rest of the pavement was obscured from view by the droves of people. Merchants and their assistants hovered about, each endeavoring to outdo the rest in enticing the swarming crowd into his tent. Jugglers and mountebanks competed for attention, outdoing even themselves in their efforts to gain the ears, the eyes, and the coins of the mob of bargain hunters.

At one side of the square, the cattle mart was drawing many, who listened to the noise of the beasts and the shouts of the vendors. Some paused to bargain. Others simply strode about, still looking for the things they had come to seek out.

Here and there, a cutpurse slunk through the crowd, seeking his own type of bargain—an unwary victim.

The Duke of Dwerostel rode into the market, conscious of a buzz which rose to a loud hum. The bellowing of beasts, the cries of vendors, the scuffling of many feet, all blended into one great sound—the voice of the fair.

The Duke listened contentedly. Here, he thought, was activity. Here, his chamberlain would find the things he had been ordered to get that the comfort of the castle might be furthered. And here was a certainty of tolls and taxes, which would enrich the duchy.

He continued at the head of his retinue, through the center of the square. Time enough to take close note of the market later. Now, he wished to get to the castle of Orieano, where he would take refreshment after his trip.

He looked up at the heights above the town. Pennants were flying from the stone battlements. And he could see the tiny figures of the guard. His presence in the town had certainly been noted. He rode to the other side of the square, and led his company up the steep, winding road to the castle's town gate.

The sentries grounded their pikes and stood rigidly as the ducal escort rode through the gate, the pennons on their lances flying with the breeze of their passage. The ducal party swept through the outer ward, through the inner wall, and came to a halt before the keep.

The Baron of Orieano waited before his keep. He came forward, bowing low before his liege, then steadied a stirrup as the Duke dismounted. He waved toward the dining hall.

"Your Excellency will grace us with his presence at meat?"

The Duke gestured to a page, who took the charger's reins to guide the beast away.

"It would be pleasing to us," he said.

He nodded graciously and followed his vassal into the hall. He nodded in approval at the long tables, waited until the clanging of the welcoming salute subsided, and went to the elevated table set for his use and that of his Baron.

He sat down, looking over the company. A glint of gold caught his eye, and he looked curiously at two men who sat a little way down the table.

These two were elegantly turned out, their long cloaks thrown back to expose richly embroidered cloth. The Duke examined them closely. Obviously, here was one of the great western nobles, with an almost equally noble companion. The golden circlet proclaimed the identity of one, and the proud bearing and rich dress of both confirmed their station. Somchow, the Duke thought, these two presented a far more imposing appearance than his vassal, the Baron Bel Menstal, despite that Baron's overwhelming personality.

He thought of his hard fighting border protector. Of course, he had

far to come, and the way through the mountains could be difficult. But it was a little strange he was not yet here.

The Duke remembered some of the resentful gazes he had noted during his passage through the faiit. He must have words, he decided, with Bel Menstal. Possibly the man was a little too eager to collect his road and river taxes. Possibly this hard man of his was too hard, too grasping. Of course, he held a valuable bastion against the tribes of the Ajerial, but—

He shrugged away his thoughts and devoted his attention to the dishes before him.

As the Duke took up his food, the waiting company commenced reaching for dishes. Konar turned toward Meinora with a slight smile.

"*Got 'em well trained, hasn't he?*"

"*That be has. Another note for our cultural information.*"

"*When do you want me to talk to him?*"

"*After he's finished his main courses and got a few cups of wine in him. Our boy'll be delayed for a while, you know. We've plenty of time to let Orieano fill the Duke in before Bel Menstal arrives.*"

Klion Meinora turned his attention to the trencher before him for a moment, then looked toward his companion again.

"*Notice the girl sitting by the Baron?*"

"*You mean Orieano's daughter?*"

"*Precisely. Don't give her any*



cause for fear. Don't even make a sudden move in her presence."

"You mean—?"

"I do. She could become Lady Death, if she got frightened."

Konar looked toward the elevated table. The girl looked harmless enough. She was slender, attractive, even delicate looking. But he remembered a horror-distorted face, a mind-shattering scream, and a blinding flash of light. He shuddered a little and turned his attention to his food.

Florel Bel Menstal strode into the hall, looking toward the table head. The Duke, he noted, was still at table, though he had finished his meal. Now, he was engaged in earnest conversation with Oricano.

This, Bel Menstal thought, must

be checked. Haughtily ignoring the rest of the company, he paced to the head of the table, where he made perfunctory obeisance.

"Your Excellency," he greeted. He straightened. "I offer my apologies for my late appearance. My men had to clear a slide from the way." He turned toward Oricano.

"You would do well to instruct your serfs in the art of road building. Their work seems slack."

He faced the Duke again. The overlord set his cup down.

"Bel Menstal," he said gravely, "two nobles of your former land have come to me to present serious accusations." He rose. "You will accompany me to the chambers."

Bel Menstal hesitated. His men were outside the castle, of course. It was against etiquette to bring them

inside, especially when the Duke was present. But there were plenty of them. Possibly he should fight his way out of here now. Once in his hilltop castle, he would be impregnable. And his raiding parties could keep the barony in supplies. Or possibly it would be better to—

He forced his panic down. After all, what could these two do? There could be little evidence they could offer. Well over twenty years had passed. He had adopted the ways of the land. Now, he was one of the Duke's powerful arms. And what could they give to offset that?

Here was no cause for fear. He could bluff his way out of this accusation, discredit the searchers, and make his position permanently secure. Possibly it was even better this way. He looked scornfully at the two men who moved toward him.

They were dressed in the ornate court dress of the Western Empire, he saw. Unquestionably, these were genuine men of the west. But he was now of the east. And here, he had established himself, and would soon establish himself more firmly, while they were mere foreigners. When it came to it, the Duke would hardly dare be too critical of him. Confidently, he pushed his way past the nearer of the two westerners, to follow the Duke to the audience chamber.

As the Duke faced about, one of the newcomers stepped forward.

"There is the man, Excellency," he said positively. "Here is no man of noble birth. This man is a serf—

a mere scullery boy—who murdered his noble master to steal his insignia. We have searched for many years, for his crime was so monstrous that no effort could be too great to bring him to justice." He faced Bel Menstal.

"Flor, serf of Budorn," he said sternly, "your time of reckoning has come. Hand over the stolen insignia."

The Duke intervened.

"Aren't we going a little fast?" he asked mildly. "He claims to be a younger son of the Earl of Konewar. Let him speak in his defense."

The stranger nodded. "That we learned, Excellency," he admitted. "And that is what led us to him, for it is one of the great holes in his story. We know of Konewar. True, he had two sons, but the younger was killed several years ago." He paused.

"There is a further bit of evidence I might offer," he added. "And I feel sure that some study by your chamberlain will bear me out." He pointed at the coronet worn by Florel.

"That insignia of rank which this man profanes is never given to other than the rightful heir to a great estate. And then, not until he succeeds to his title. No younger member of any of our noble families has ever been allowed the coronet or the belt. Even many large landholders, such as I, do not have them. Those are reserved for the heads of the great houses, and there are few of them in existence. Certainly, no western Earl would desert his hold-

ings to journey to far lands and to take service with another, not even one so highly placed as yourself."

The Duke looked sharply at him, then turned his gaze on his vassal. "These words have the ring of truth," he said. "Can you answer them? Have you perchance traded upon our unfamiliarity with your home country to misrepresent your station?"

Flor looked around the room. Possibly there was still time to— Or possibly he could still face these men down. Only one of them wore a coronet. He drew himself up arrogantly.

"These are cunning deceivers," he stated positively. "When I left Kone-war, my father himself—"

Meinora raised a hand threateningly. "Your father was never in Kone-war, Serf," he said sternly. "Your father still tends his master's fields in the hills of Budoris."

Flor snatched his sword from its sheath. This was the unprotected one. He could be struck with the sword, and perhaps in the confusion, an escape would be possible.

"That is the last insult," he snarled. "I challenge you to combat, to test whether you can support your lies."

"Nobles," was the reply, "do not fight with serfs. You should know that. The great ones, like him," Meinora pointed at Konar, who stood close to the Duke, "have no contact with such as you. But I am here. And when a serf becomes insolent, we have ways of punishing him."

Konar smiled a little, pointing a small object as Meinora slipped his own sword out.

Flor lunged furiously, and Meinora stepped aside. The man had determination and fierce courage. But he had never bothered to really learn the use of his weapon. No need, of course. He had never been compelled to put up a defense. Not till now. The hand weapon held by Konar would destroy his invulnerability.

Meinora struck suddenly at Flor's hand with the flat of his blade, then engaged the man's sword with his own, and twisted. The weapon clattered to the floor and Flor stooped to recover it.

The team chief laughed shortly, bringing the flat of his blade down in a resounding smack and Flor straightened, involuntarily bringing a hand to his outraged rear. Again, the blade descended, bringing a spurt of dust from his clothing. Flor twisted, trying to escape, but his assailant followed, swinging blow after full armed blow with the flat of his sword. He worked with cool skill.

It seemed to Flor that the punishing steel came from all directions, to strike him at will. Blows fell on his back, his legs, even his face, and he cringed away, trying desperately to escape the stinging pain. Under the smarting blows, he remembered previous whippings, administered by a strong-armed kitchen master, and he seemed to smell the stench of the scullery once more. Suddenly, he sank to his knees in surrender.

"Please, Master. No more, please."

He raised his hands, palms together, and looked up pleadingly.

The Duke looked down in horrified disgust.

"And this, I accepted. This, I made a Baron of my realm." He transferred his gaze to Konar. Suddenly, he looked feeble and humbly suppliant.

Flor sniffled audibly.

"I know you have come a long way," the Duke said, "but I would ask of you a favor. I would deal with this miscreant. Your injury is old. It has been partially healed by time, and it does not involve honor so deeply as does my own." He shook his head.

"I have abandoned the dignity of my station, and the injury is fresh and must continue unless I act to repair it."

Konar nodded graciously. "Your Excellency's request is just," he said. "We but came to reclaim the lost insignia of Budorn." He stepped forward, taking the circlet from Flor's head. Two guards seized the prisoner, and Konar tore the belt from the man's waist.

"This insigne must be remounted," he said. "The belt has been dishonored for too long." He broke the fastenings holding the body shield to the leather, and threw the heavy strap back at Flor.

"We are deeply indebted to you, Excellency," he added, turning to the Duke. "If it is your will, we shall remain only for the execution, then return to our own land."

The Duke sighed. "It is well." He nodded at the guards. "Remove him,"

he ordered. "An execution will be held at daybreak."

"Very good, Konar. You handled that beautifully."

"Thanks, Chief. What's next?"

"Just keep the Duke busy with bright conversation. Buck up his spirits a bit. The old boy's had a nasty shock, and unfortunately, he's due for another one. Too bad, but it's for the best. I'll take it from here."

Diners looked up curiously as the two guards led Flor through the hall to the outer door. A few rose and followed as the three men went past the sentries at the portal, and came out into the sunshine of the inner ward. Across the cobblestones was the narrow entrance to the dungeon.

Flor looked around despairingly. His charger stood, waiting for the rider, who would never again—Or would he?

He remembered that he was still carrying the heavy belt that had been so contemptuously flung at him. When the strap had been thrown, he had flung a hand up to protect his already aching face. He had caught and held the belt, and no one had thought to take it from him.

He suddenly swerved his thick shoulders, swinging the heavy strap at the eyes of one of his guards. With a cry of pain, the man covered his face, and Flor spun, to swing the strap at the other guard. Before the two men could recover, he dashed to the side of his mount, swung into

the saddle, and urged the beast into motion.

The wall was low on this side, but Flor remembered it towered high above the dry moat. And across that moat were the woods, where his men waited. He urged the beast to full speed, forcing the animal to the top of the wall and over.

For an almost endless instant, time seemed to stop. The barren moat and green weeds floated beneath him, and the only reminder of his rapid drop was the air, which whistled past his ears. Suddenly, motion was restored again, and they lit with a jarring crash, just at the lip of the moat.

With a cry of agony, the charger pitched forward, pawing at the stones that had smashed his chest, and throwing his rider over his head. Flor managed to land uninjured. He picked himself up and ran to the edge of the forest before he stopped to look back.

Heads were appearing atop the wall. At the edge of the moat, the charger struggled vainly, then dropped from sight. Flor waved defiantly at the growing crowd which stared from the high wall.

"The Duke hangs nobody," he shouted, "unless he can catch and hold him." He turned, to make his way through the trees.

"In fact," he added to himself, "I may yet return to hang the Duke."

He went to the meadow where his escort was encamped.

"We have been betrayed," he shouted. "The Duke plots with the merchants to destroy Bel Menstal and

hang his men. Break camp! We must gather the forces of the barony."

Baron Bel Orieano looked worried.

"The Duke has sent couriers," he said, "to gather the fighting men of the duchy. But it will be a long, hard struggle. The serf has gained the hills of Menstal. He has raised his men, and has dared to attack. Some say he has enlisted those very hill tribes, from whose depredations he swore to defend the duchy, and even has them serving under his banner." He looked at Meinora and Konar.

"The roads of the duchy are no longer safe. Raiding parties appear at every wooded stretch. Nor can we even be certain that the couriers have gotten through to Dweros." He shook his head.

"I, of course, am loyal to the Duke. But my forces are few. My barony has been a peaceful community, having little need for arms."

Meinora smiled encouragingly. "Yet there are fighters here," he said, "and in plenty."

The Baron looked at him curiously. "Where? I have no knowledge of such."

Konar leaned forward. "If you can help us get the Duke's approval, we can raise an army which ten Bel Menstals would fail to withstand."

"The Duke's approval?"

"Certainly." Konar waved his hand. "Look over your walls, Excellency. You have burghers. There are armorers, merchants, with their caravan guards, artisans, even peas-

ants. Here, today, are gathered more able-bodied men than Bel Menstal could raise, were he to search out and impress all the hill tribes."

"But, to arm these Commoners? And would they fight?"

"To be sure. Given reason, they will fight like madmen."

Meinora leaned forward, speaking rapidly. "For long years, they have suffered from the road and river taxes of Bel Menstal, as well as from the insults and blows of his officers. Many of them have been imprisoned, and held for ruinous ransom. Others have been tortured and killed. Under the serf, they would suffer additional taxes, until they were driven from the land, or themselves reduced to serfdom and even slavery." He waved at the town.

"Caravans would be halted and stripped of both goods and coin. All this, he has done before, but on no such scale as he would were restraining hands removed." Meinora spread his hands.

"The Duke has only to promise, under his solemn oath, to rid the land of robbers, to allow the merchants and artisans to police the land, and to form those guilds and associations which they have long petitioned for their own protection. For these things, they will fight."

The Baron leaned back in his chair. He had heard some of these arguments before, but had ignored them, thinking that they were mere special pleading from interested merchants. Now, they were being presented by men of his own station.

And the situation was urgent. Drastic measures were necessary. Under the gaze of the two, he felt a change of thought. The whole thing was possible, of course, and it might be that trade, uninterrupted by robber depredation, would provide greater taxes than before.

Finally, he rose to his feet. "Come," he said, "we will seek audience with the Duke and put this matter before him."

"Well, that's part of the job." Klion Meinora twisted in his seat and craned his neck to look at the green fields spread out beneath the flier.

"It worked out almost exactly as you explained it, Chief." Konar looked curiously at his instructor. "But I missed a couple of steps somewhere."

"It followed from the culture pattern." Meinora raised an eyebrow. "You saw the reaction of the Duke when he realized that Flor was actually a serf?"

"Sure. He was so horrified, he was sick."

"But did you think of the reaction of the townsmen and peasants?"

"You mean they'd feel the same way?"

"Sure. Most of them did. These people have been ingrained with a firm belief in their mode of living. They regard it as right and proper. And the murder and robbery of a noble by a serf is just as serious in the eyes of serfs and freemen as it is to the nobles. No serf in his right

mind would even think of raising a hand against a noble, not even in self-defense. Catch?"

Konar leaned back, "Oh, brother," he murmured. "I can just see what happened when Flor's real status finally penetrated the minds of his own men."

"You're probably right, too. And with no body shield to supplement his rather awkward swordsmanship, Flor was fresh meat for the first real fighting man that stood up to him." Meinora shook his head.

"His was a hopelessly twisted mentality, and there was no possibility of salvage."

"I know. They have a few of his type in the wards at Aldebaran." Konar shrugged hopelessly. "Therapists just fold their hands when they see 'em."

"They do that. People like Flor are just pure ferocity. Oh, sometimes, they're cunning, even talented. But there's no higher mentality to develop—not a trace of empathy. And you can't work with something that's completely missing. Good thing they are quite rare."

"I should say so," agreed Konar. "A very good thing." He looked out over the fields. "His influence lasted for a while, too."

"It did. He'd conditioned his peo-

ple to a certain extent. Just as I expected, it took some time to persuade that gang to stop their depredations, and it had to be done the hard way. But the merchants were willing, and that's what it took." Meinora brushed a hand over his hair. He knew how the rest of this story went—

"It'll take 'em some time to get used to their new charters, but the roots of the guilds are formed. And they did some fighting and learned their powers. It'll take a lot to make 'em go back to the old routine. The Duke'll never try it, and his successors won't be able to. Anyone who tries to conquer that bunch of wildcats'll have a tough job, and he'll get really hurt. It'll spread, too. Merchants and artisans in the next duchy'll get the idea. And then the next, and the next. Freedom's a contagious thing."

Klion Meinora studied the terrain, then turned back.

"It's going to be a tough planet for a long time," he said thoughtfully. "A tough, brawling planet. They'll fight for everything they get, and sometimes for just the love of fighting. The people who come from here will be something to deal with. But they'll knock their own rough edges off. No, they won't be savages."

THE END



ALLAMAGOOSA

BY ERIC FRANK RUSSELL

Just what it was, they weren't quite sure, but they knew it had to be there; the Bureau's Inventory said so. And the consequences of its "accidental" destruction were most astonishing . . .

Illustrated by Freas

It was a long time since the *Buster* had been so silent. She lay in the Sirian spaceport, her tubes cold, her shell particle-scarred, her air that of a long-distance runner exhausted at the end of a marathon. There was good reason for this: she had returned from a lengthy trip by no means devoid of troubles.

Now, in port, well-deserved rest had been gained if only temporarily. Peace, sweet peace. No more bothers, no more crises, no more major upsets, no more dire predicaments such as crop up in free flight at least twice a day. Just peace.

Hah!

Captain McNaught reposed in his

cabin, feet up on desk, and enjoyed the relaxation to the utmost. The engines were dead, their hellish pounding absent for the first time in months. Out there in the big city four hundred of his crew were making whoopee under a brilliant sun. This evening, when First Officer Gregory returned to take charge, he was going to go into the fragrant twilight and make the rounds of neon-lit civilization.

That was the beauty of making landfall at long last. Men could give way to themselves, blow off surplus steam, each according to his fashion. No duties, no worries, no dangers, no responsibilities in spaceport. A haven of safety and comfort for tired rovers.

Again, hah!

Burman, the chief radio officer, entered the cabin. He was one of the half-dozen remaining on duty and bore the expression of a man who can think of twenty better things to do.

"Relayed signal just come in, sir." Handing the paper across he waited for the other to look at it and perhaps dictate a reply.

Taking the sheet, McNaught removed the feet from his desk, sat erect and read the message aloud.

Terran Headquarters to Bustler. Remain Siriport pending further orders. Rear Admiral Vane W. Cassidy due there seventeenth. Feldman. Navy Op. Command, Sirisec.

He looked up, all happiness gone from his leathery features, and groaned.

"Something wrong?" asked Burman, vaguely alarmed.

McNaught pointed at three thin books on his desk. "The middle one. Page twenty."

Leafing through it, Burman found an item that said: *Vane W. Cassidy, R-Ad. Head Inspector Ships and Stores.*

Burman swallowed hard. "Does that mean—?"

"Yes, it does," said McNaught without pleasure. "Back to training-college and all its rigmarole. Paint and soap, spit and polish." He put on an officious expression, adopted a voice to match it. "Captain, you have only seven ninety-nine emergency rations. Your allocation is eight hundred. Nothing in your log-book accounts for the missing one. Where is it? What happened to it? How is it that one of the men's kit lacks an officially issued pair of suspenders? Did you report his loss?"

"Why does he pick on us?" asked Burman, appalled. "He's never chivied us before."

"That's why," informed McNaught, scowling at the wall. "It's our turn to be stretched across the barrel." His gaze found the calendar. "We have three days—and we'll need 'em! Tell Second Officer Pike to come here at once."

Burman departed gloomily. In short time Pike entered. His face reaffirmed the old adage that bad news travels fast.

"Make out an indent," ordered McNaught, "for one hundred gallons of plastic paint, Navy-gray, ap-

proved quality. Make out another for thirty gallons of interior white enamel. Take them to spaceport stores right away. Tell them to deliver by six this evening along with our correct issue of brushes and sprayers. Grab up any cleaning material that's going for free."

"The men won't like this," remarked Pike, feebly.

"They're going to love it," McNaught asserted. "A bright and shiny ship, all spic and span, is good for morale. It says so in that book. Get moving and put those indents in. When you come back, find the stores and equipment sheets and bring them here. We've got to check stocks before Cassidy arrives. Once he's here we'll have no chance to make up shortages or smuggle out any extra items we happened to find in our hands."

"Very well, sir." Pike went out wearing the same expression as Burman's.

Lying back in his chair McNaught muttered to himself. There was a feeling in his bones that something was sure to cause a last-minute tuckus. A shortage of any item would be serious enough unless covered by a previous report. A surplus would be bad, very bad. The former implied carelessness or misfortune. The latter suggested barefaced theft of government property in circumstances condoned by the commander.

For instance, there was that recent case of Williams of the heavy cruiser *Swift*. He'd heard of it over the

spacevine when out around Bootes. Williams had been found in unwitting command of eleven reels of electric-fence wire when his official issue was ten. It had taken a court-martial to decide that the extra reel—which had formidable barter-value on a certain planet—had not been stolen from space-stores or, in sailor jargon, "teleported aboard." But Williams had been reprimanded. And that did not help promotion.

He was still rumbling discontentedly when Pike returned bearing a folder of foolscap sheets.

"Going to start right away, sir?"

"We'll have to." He heaved himself erect, mentally bidden good-by to time off and a taste of the bright lights. "It'll take long enough to work right through from bow to tail. I'll leave the men's kit inspection to the last."

Marching out of the cabin, he set forth toward the bow, Pike following with broody reluctance.

As they passed the open main lock Peaslake observed them, bounded eagerly up the gangway and joined behind. A pukka member of the crew, he was a large dog whose ancestors had been more enthusiastic than selective. He wore with pride a big collar inscribed: *Peaslake—Property of S. S. Bustler*. His chief duties, ably performed, were to keep alien rodents off the ship and, on rare occasions, smell out dangers not visible to human eyes.

The three paraded forward, McNaught and Pike in the manner of men grimly sacrificing pleasure for

the sake of duty, Peaslake with the panting willingness of one ready for any new game no matter what.

Reaching the bow-cabin, McNaught dumped himself in the pilot's seat, took the folder from the other. "You know this stuff better than me—the chart room is where I shine. So I'll read them out while you look them over." He opened the folder, started on the first page. "K1. Beam compass, type D, one of."

"Check," said Pike.

"K2. Distance and direction indicator, electronic, type JJ, one of."

"Check."

"K3. Port and starboard gravitic meters, Casini models, one pair."

"Check."

Peaslake planted his head in McNaught's lap, blinked soulfully and whined. He was beginning to get the others' viewpoint. This tedious itemizing and checking was a hell of a game. McNaught consolingly lowered a hand and played with Peaslake's ears while he ploughed his way down the list.

"K187. Foam rubber cushions, pilot and co-pilot, one pair."

"Check."

By the time First Officer Gregory appeared they had reached the tiny intercom cubby and poked around it in semidarkness. Peaslake had long departed in disgust.

"M24. Spare minispeakers, three inch, type T2, one set of six."

"Check."

Looking in, Gregory popped his

eyes and said, "What's going on?"

"Major inspection due soon." McNaught glanced at his watch. "Go see if stores has delivered a load and if not why not. Then you'd better give me a hand and let Pike take a few hours off."

"Does this mean land-leave is canceled?"

"You bet it does—until after Hizonner has been and gone." He glanced at Pike. "When you get into the city search around and send back any of the crew you can find. No arguments or excuses. Also no alibis and/or delays. It's an order."

Pike registered unhappiness. Gregory glowered at him, went away, came back and said, "Stores will have the stuff here in twenty minutes' time." With bad grace he watched Pike depart.

"M47. Intercom cable, woven-wire protected, three drums."

"Check," said Gregory, mentally kicking himself for returning at the wrong time.

The task continued until late in the evening, was resumed early next morning. By that time three-quarters of the men were hard at work inside and outside the vessel, doing their jobs as though sentenced to them for crimes contemplated but not yet committed.

Moving around the ship's corridors and catwalks had to be done crab-fashion, with a nervous side-wise edging. Once again it was being demonstrated that the Terran life form suffers from ye fear of wette paynt. The first smearer would

have ten years willed off his unfortunate life.

It was in these conditions, in mid-afternoon of the second day, that McNaught's bones proved their feelings had been prophetic. He recited the ninth page while Jean Blanchard confirmed the presence and actual existence of all items enumerated. Two-thirds of the way down they hit the rocks, metaphorically speaking, and commenced to sink fast.

McNaught said boredly, "V1097. Drinking bowl, enamel, one of."

"Is zis," said Blanchard, tapping it.

"V1098. Offog, one."

"*Quoi?*" asked Blanchard, staring.

"V1098. Offog, one," repeated McNaught. "Well, why are you looking thunderstruck? This is the ship's galley. You're the head cook. You know what's supposed to be in the galley, don't you? Where's this offog?"

"Never hear of heem," stated Blanchard, flatly.

"You must have. It's on this equipment-sheet in plain, clear type. Offog, one, it says. It was here when we were fitted-out four years ago. We checked it ourselves and signed for it."

"I signed for nossings called offog," Blanchard denied. "In the cuisine zere is no such sing."

"Look!" McNaught scowled and showed him the sheet.

Blanchard looked and sniffed disdainfully. "I have here zee electronic

oven, one of. I have jacketed boilers, graduated capacities, one set. I have bain marie pans, sex of. But no offog. Never heard of heem. I do not know of heem." He spread his hands and shrugged. "No offog."

"There's got to be," McNaught insisted. "What's more, when Cassidy arrives there'll be hell to pay if there isn't."

"You find heem," Blanchard suggested.

"You got a certificate from the International Hotels School of Cookery. You got a certificate from the Cordon Bleu College of Cuisine. You got a certificate with three credits from the Space-Navy Feeding Center," McNaught pointed out. "All that—and you don't know what an offog is."

"*Nom d'un chien!*" ejaculated Blanchard, waving his arms around. "I tell you ten t'ousand time zere is no offog. Zere never was an offog. Escoffier heemself could not find zee offog of vich zere is none. Am I a magician perhaps?"

"It's part of the culinary equipment," McNaught maintained. "It must be because it's on page nine. And page nine means its proper home is in the galley, care of the head cook."

"Like hail it does," Blanchard retorted. He pointed at a metal box on the wall. "Intercom booster. Is zat mine?"

McNaught thought it over, conceded, "No, it's Burman's. His stuff rambles all over the ship."

"Zen ask heem for zis bloody

offog," said Blanchard, triumphantly.

"I will. If it's not yours it must be his. Let's finish this checking first. If I'm not systematic and thorough Cassidy will jerk off my insignia." His eyes sought the list. "V1099. Inscribed collar, leather, brass studded, dog, for the use of. No need to look for that. I saw it myself five minutes ago." He ticked the item, continued, "V1100. Sleeping basket, woven reed, one of."

"Is zis," said Blanchard, kicking it into a corner.

"V1101. Cushion, foam rubber, to fit sleeping basket, one of."

"Half of," Blanchard contradicted. "In four years he has chewed away other half."

"Maybe Cassidy will let us indent for a new one. It doesn't matter. We're O. K. so long as we can produce the half we've got." McNaught stood up, closed the folder. "That's the lot for here. I'll go see Burman about this missing item."

The inventory party moved on.

Burman switched off a UHF receiver, removed his earplugs and raised a questioning eyebrow.

"In the galley we're short an offog," explained McNaught. "Where is it?"

"Why ask me? The galley is Blanchard's bailiwick."

"Not entirely. A lot of your cables run through it. You've two terminal boxes in there, also an automatic switch and an intercom booster. Where's the offog?"

"Never heard of it," said Burman, baffled.

McNaught shouted, "Don't tell me that! I'm already fed up hearing Blanchard saying it. Four years back we had an offog. It says so here. This is our copy of what we checked and signed for. It says we signed for an offog. Therefore we must have one. It's got to be found before Cassidy gets here."

"Sorry, sir," sympathized Burman. "I can't help you."

"You can think again," advised McNaught. "Up in the bow there's a direction and distance indicator. What do *you* call it?"

"A didin," said Burman, mystified.

"And," McNaught went on, pointing at the pulse transmitter, "what do you call *that*?"

"The opper-popper."

"Baby names, see? Didin and opper-popper. Now rack your brains and remember what you called an offog four years ago."

"Nothing," asserted Burman, "has ever been called an offog to my knowledge."

"Then," demanded McNaught, "why did we sign for one?"

"I didn't sign for anything. You did all the signing."

"While you and others did the checking. Four years ago, presumably in the galley, I said, 'Offog, one,' and either you or Blanchard pointed to it and said, 'Check.' I took somebody's word for it. I have to take other specialists' words for it. I am an expert navigator, familiar

with all the latest navigational gadgets but not with other stuff. So I'm compelled to rely on people who know what an offog is—or ought to."

Burman had a bright thought. "All kinds of oddments were dumped in the main lock, the corridors and the galley when we were fitted-out. We had to sort through a deal of stuff and stash it where it properly belonged, remember? This offog-thing might be any place today. It isn't necessarily my responsibility or Blanchard's."

"I'll see what the other officers say," agreed McNaught, conceding the point. "Gregory, Worth, Sander-son or one of the others may be coddling the item. Wherever it is, it's got to be found. Or accounted for in full if it's been expended."

He went out. Burman pulled a face, inserted his earplugs, resumed fiddling with his apparatus. An hour later McNaught came back wearing a scowl.

"Positively," he announced with ire, "there is no such thing on the ship. Nobody knows of it. Nobody can so much as guess at it."

"Cross it off and report it lost," Burman suggested.

"What, when we're hard aground? You know as well as I do that loss and damage must be signaled at time of occurrence. If I tell Cassidy the offog went west in space, he'll want to know when, where, how and why it wasn't signaled. There'll be a real ruckus if the contraption happens to be valued at half a million

credits. I can't dismiss it with an airy wave of the hand."

"What's the answer then?" in-quired Burman, innocently ambling straight into the trap.

"There's one and only one," Mc- Naught announced. "You will manu-facture an offog."

"Who? Me?" said Burman, twitching his scalp.

"You and no other. I'm fairly sure the thing is your pigeon, any-way."

"Why?"

"Because it's typical of the baby- names used for your kind of stuff. I'll bet a month's pay that an offog is some sort of scientific allamagoosa. Something to do with fog, perhaps. Maybe a blind-approach gadget."

"The blind-approach transceiver is called 'the fumbly,'" Burman in-formed.

"There you are!" said McNaught as if that clinched it. "So you will make an offog. It will be completed by six tomorrow evening and ready for my inspection then. It had better be convincing, in fact pleasing. In fact its function will be convincing."

Burman stood up, let his hands dangle, and said in hoarse tones, "How can I make an offog when I don't even know what it is?"

"Neither does Cassidy know," Mc- Naught pointed out, leering at him. "He's more of a quantity surveyor than anything else. As such he counts things, looks at things, certifies that they exist, accepts advice on whether they are functionally satisfactory or worn out. All we need do is concoct

an imposing allamagoosa and tell him it's the offog."

"Holy Moses!" said Burman, fervently.

"Let us not rely on the dubious assistance of Biblical characters," McNaught reproved. "Let us use the brains that God has given us. Get a grip on your soldering-iron and make a topnotch offog by six tomorrow evening. That's an order!"

He departed, satisfied with this solution. Behind him, Burman gloomed at the wall and licked his lips once, twice.

Rear Admiral Vane W. Cassidy arrived right on time. He was a short, paunchy character with a florid complexion and eyes like those of a long-dead fish. His gait was an important strut.

"Ah, captain, I trust that you have everything shipshape."

"Everything usually is," assured McNaught, glibly. "I see to that." He spoke with conviction.

"Good!" approved Cassidy. "I like a commander who takes his responsibilities seriously. Much as I regret saying so, there are a few who do not." He marched through the main lock, his cod-eyes taking note of the fresh white enamel. "Where do you prefer to start, bow or tail?"

"My equipment-sheets run from bow backward. We may as well deal with them the way they're set."

"Very well." He trotted officiously toward the nose, paused on the way to pat Peaslake and examine his

collar. "Well cared-for, I see. Has the animal proved useful?"

"He saved five lives on Mardia by barking a warning."

"The details have been entered in your log, I suppose?"

"Yes, sir. The log is in the chart room awaiting your inspection."

"We'll get to it in due time." Reaching the bow-cabin, Cassidy took a seat, accepted the folder from McNaught, started off at businesslike pace. "K1. Beam compass, type D, one of."

"This is it, sir," said McNaught, showing him.

"Still working properly?"

"Yes, sir."

They carried on, reached the intercom-cubby, the computor room, a succession of other places back to the galley. Here, Blanchard posed in freshly laundered white clothes and eyed the newcomer warily.

"V147. Electronic oven, one of."

"Is zis," said Blanchard, pointing with disdain.

"Satisfactory?" inquired Cassidy, giving him the fishy-eye.

"Not beeg enough," declared Blanchard. He encompassed the entire galley with an expressive gesture. "Nossings beeg enough. Place too small. Everysing too small. I am chef de cuisine an' she is a cuisine like an attic."

"This is a warship, not a luxury liner," Cassidy snapped. He frowned at the equipment-sheet. "V148. Timing device, electronic oven, attachment thereto, one of."

"Is zis," spat Blanchard, ready to

sling it through the nearest port if Cassidy would first donate the two pins.

Working his way down the sheet, Cassidy got nearer and nearer while nervous tension built up. Then he reached the critical point and said, "V1098. Offog, one."

"*Morbleau!*" said Blanchard, shooting sparks from his eyes, "I have say before an' I say again, zere never was—"

"The offog is in the radio room, sir," McNaught chipped in hurriedly.

"Indeed?" Cassidy took another look at the sheet. "Then why is it recorded along with galley equipment?"

"It was placed in the galley at time of fitting-out, sir. It's one of those portable instruments left to us to fix up where most suitable."

"Hm-m-m! Then it should have been transferred to the radio room list. Why didn't you transfer it?"

"I thought it better to wait for your authority to do so, sir."

The fish-eyes registered gratification. "Yes, that is quite proper of you, captain. I will transfer it now." He crossed the item from sheet nine, initialed it, entered it on sheet sixteen, initialed that. "V1099. Inscribed collar, leather . . . oh, yes, I've seen that. The dog was wearing it."

He ticked it. An hour later he strutted into the radio room. Burman stood up, squared his shoulders but could not keep his feet or hands from fidgeting. His eyes protruded slightly and kept straying toward

McNaught in silent appeal. He was like a man wearing a porcupine in his britches.

"V1098. Offog, one," said Cassidy in his usual tone of brooking no nonsense.

Moving with the jerkiness of a slightly uncoordinated robot, Burman pawed a small box fronted with dials, switches and colored lights. It looked like a radio ham's idea of a fruit machine. He knocked down a couple of switches. The lights came on, played around in intriguing combinations.

"This is it, sir," he informed with difficulty.

"Ah!" Cassidy left his chair and moved across for a closer look. "I don't recall having seen this item before. But there are so many different models of the same things. Is it still operating efficiently?"

"Yes, sir."

"It's one of the most useful things in the ship," contributed McNaught, for good measure.

"What does it *do?*" inquired Cassidy, inviting Burman to cast a pearl of wisdom before him.

Burman paled.

Hastily, McNaught said, "A full explanation would be rather involved and technical but, to put it as simply as possible, it enables us to strike a balance between opposing gravitational fields. Variations in lights indicate the extent and degree of unbalance at any given time."

"It's a clever idea," added Burman, made suddenly reckless by this

news, "based upon Finagle's Constant."

"I see," said Cassidy, not seeing at all. He resumed his seat, ticked the offog and carried on. "Z44. Switchboard, automatic, forty-line intercom, one of."

"Here it is, sir."

Cassidy glanced at it, returned his gaze to the sheet. The others used his momentary distraction to mop perspiration from their foreheads.

Victory had been gained.

All was well.

For the third time, hah!

Rear Admiral Vane W. Cassidy departed pleased and complimentary. Within one hour the crew bolted to town. McNaught took turns with Gregory at enjoying the gay lights. For the next five days all was peace and pleasure.

On the sixth day Burman brought in a signal, dumped it upon McNaught's desk and waited for the reaction. He had an air of gratification, the pleasure of one whose virtue is about to be rewarded.

Terran Headquarters to Bustler. Return here immediately for overhaul and refitting. Improved power plant to be installed. Feldman. Navy Op. Command. Sirise.

"Back to Terra," commented McNaught, happily. "And an overhaul will mean at least one month's leave." He eyed Burman. "Tell all officers on duty to go to town at once and order the crew aboard. The men will come running when they know why."

"Yes, sir," said Burman, grinning. Everyone was still grinning two weeks later when the Siriport had receded far behind and Sol had grown to a vague speck in the sparkling mist of the bow starfield. Eleven weeks still to go, but it was worth it. Back to Terra. Hurrah!

In the captain's cabin the grins abruptly vanished one evening when Burman suddenly developed the willies. He marched in, chewed his bottom lip while waiting for McNaught to finish writing in the log.

Finally, McNaught pushed the book away, glanced up, frowned. "What's the matter with you? Got a bellyache or something?"

"No, sir. I've been thinking."

"Does it hurt that much?"

"I've been thinking," persisted Burman in funereal tones. "We're going back for overhaul. You know what that means? We'll walk off the ship and a horde of experts will walk onto it." He stared tragically at the other. "Experts, I said."

"Naturally they'll be experts," McNaught agreed. "Equipment cannot be tested and brought up to scratch by a bunch of dopes."

"It will require more than a mere expert to bring the offog up to scratch," Burman pointed out. "It'll need a genius."

McNaught rocked back, swapped expressions like changing masks. "Jumping Judas! I'd forgotten all about that thing. When we get to Terra we won't blind those boys with science."

"No, sir, we won't," endorsed

Burman. He did not add "any more" but his face shouted aloud, "You got me into this. You get me out of it." He waited a time while McNaught did some intense thinking, then prompted, "What do you suggest, sir?"

Slowly the satisfied smile returned to McNaught's features as he answered, "Break up the contraption and feed it into the disintegrator."

"That doesn't solve the problem," said Burman. "We'll still be short an offog."

"No we won't. Because I'm going to signal its loss owing to the hazards of space-service." He closed one eye in an emphatic wink. "We're in free flight right now." He reached for a message-pad and scribbled on it while Burman stood by vastly relieved.

Bustler to Terran Headquarters. Item V1098, Offog one, came apart under gravitational stress while passing through twin-sun field Hector Major-Minor. Material used as fuel. McNaught, Commander. Bustler.

Burman took it to the radio room and beamed it Earthward. All was peace and progress for another two days. The next time he went to the captain's cabin he went running and worried.

"General call, sir," he announced breathlessly and thrust the message into the other's hands.

Terran Headquarters for relay all sectors. Urgent and Important. All ships grounded forthwith. Vessels in flight under official orders will make

for nearest spaceport pending further instructions. Welling. Alarm and Rescue Command. Terra.

"Something's gone bust," commented McNaught, undisturbed. He traipsed to the chart room, Burman following. Consulting the charts, he dialed the intercom phone, got Pike in the bow and ordered, "There's a panic. All ships grounded. We've got to make for Zaxedport, about three days' run away. Change course at once. Starboard seventeen degrees, declination ten." Then he cut off, griped, "Bang goes that sweet month on Terra. I never did like Zaxed, either. It stinks. The crew will feel murderous about this and I don't blame them."

"What d'you think has happened, sir?" asked Burman. He looked both uneasy and annoyed.

"Heaven alone knows. The last general call was seven years ago when the *Starider* exploded halfway along the Mars run. They grounded every ship in existence while they investigated the cause." He rubbed his chin, pondered, went on, "And the call before that one was when the entire crew of the *Blowgun* went nuts. Whatever it is this time, you can bet it's serious."

"It wouldn't be the start of a space war?"

"Against whom?" McNaught made a gesture of contempt. "Nobody has the ships with which to oppose us. No, it's something technical. We'll learn of it eventually. They'll tell us before we reach Zaxed or soon afterward."

They did tell him. Within six hours, Burman rushed in with face full of horror.

"What's eating you now?" demanded McNaught, staring at him.

"The offog," stammered Burman. He made motions as though brushing off invisible spiders.

"What of it?"

"It's a typographical error. In your copy it should read off, dog."

The commander stared owlishly.

"Off, dog?" echoed McNaught, making it sound like foul language.

"See for yourself." Dumping the signal on the desk, Burman bolted out, left the door swinging. Mc-

Naught scowled after him, picked up the message.

Terran Headquarters to Bustler. Your report V1098, ship's official dog Peaslake. Detail fully circumstances and manner in which animal came apart under gravitational stress. Cross-examine crew and signal all coincidental symptoms experienced by them. Urgent and Important. Welling. Alarm and Rescue Command. Terra.

In the privacy of his cabin McNaught commenced to eat his nails. Every now and again he went a little cross-eyed as he examined them for nearness to the flesh.

THE END

IN TIMES TO COME

Next issue, in addition to the third part of "The Long Way Home," we have a variety of items of interest. Isaac Asimov has done an article—but not of his thiotimoline type. This one, called "The Sound of Panting" is founded on sweat and tears (the blood went into his recent haemoglobin item)—the problem of the textbook writer trying to write a textbook that is up to date, at least at the time it reaches the printer. It's an excellent discussion of why not to try to be aware of all that's going on in any field of modern science!

Kelly Freas has done a cover for Everett B. Cole's "The Final Weapon," depicting rather neatly the developments of weapons from the crudest club to the most exquisitely refined modern weapon—the dossier. And Cole discusses the next step beyond that—the device that allows one man to read another's mind!

THE EDITOR



RISK

It was guaranteed not to kill anybody—wouldn't harm a hair of your head. Of course, it did tend to turn you into a mindless idiot—but it wouldn't hurt you a bit.

BY ISAAC ASIMOV

Illustrated by Freas

The Three Laws of Robotics

1. *A robot may not injure a human being, or, through inaction, allow a human being to come to harm.*

2. *A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.*

3. *A robot must protect its own existence as long as such protection does not conflict with the First, or Second Law.*

Handbook of Robotics

Hyper Base had lived for this day. Spaced about the gallery of the viewing room, in order and precedence strictly dictated by protocol,

was a group of officials, scientists, technicians and others who could only be lumped under the general classification of "personnel." In accordance with their separate temperaments, they waited hopefully, uneasily, breathlessly, eagerly, or fearfully for this culmination of their efforts.

The hollowed interior of the asteroid known as Hyper Base had become for this day the center of a sphere of iron security that extended out for ten thousand miles. No ship might enter that sphere and live. No message might leave without scrutiny.

A hundred miles away, more or less, a small asteroid moved neatly in the orbit into which it had been urged a year before, an orbit that ringed Hyper Base in as perfect a circle as could be managed. The asteroidlet's identity number was H937, but no one on Hyper Base called it anything but It. ("Were you out on it, today?" "The general's on it, blowing his top," and eventually the impersonal pronoun achieved the dignity of capitalization.)

On It, unoccupied now as zero-second approached, was the *Parsec*, the only ship of its kind ever built in the history of man. It lay, unmanned, ready for its takeoff into the inconceivable.

Gerald Black, who, as one of the bright young men in etherics engineering, rated a front-row view, cracked his large knuckles, then wiped his sweating palms on his stained white smock and said, sourly,

"Why don't you bother the general, or her Ladyship there?"

Nigel Ronson, of Interplanetary Press, looked briefly across the gallery toward the glitter of Major General Richard Kallner and toward the unremarkable woman at his side, scarcely visible in the glare of his dress uniform. He said, "I would, except that I'm interested in news."

Ronson was short and plump. He painstakingly wore his hair in a quarter-inch bristle, his shirt-collar open, and his trouser-leg ankle-short, in faithful imitation of the newsmen stockily-characterized on the video shows. He was a capable reporter nevertheless.

Black was stocky and his dark hairline left little room for forehead, but his mind was as keen as his strong fingers were blunt. He said, "They've got all the news."

"Nuts," said Ronson. "Kallner's got no body under that gold braid. Strip him and you'll find only a conveyor-belt dribbling orders downward and shooting responsibility upward."

Black found himself at the point of a grin but squeezed it down. He said, "What about the Madam Doctor?"

"Dr. Susan Calvin of United States Robots & Mechanical Men, Incorporated." intoned the reporter. "The lady with hyperspace where her heart ought to be and liquid helium in her eyes. She'd pass through the sun and come out the other end encased in frozen flame."

Black came even closer to a grin.

"How about Director Schloss, then?"

Ronson said, glibly, "He knows too much. Between spending his time fanning the feeble flicker of intelligence in his listener, and dimming his own brains for fear of blinding said listener permanently by sheer force of brilliance, he ends up saying nothing."

Black showed his teeth this time. "Now suppose you tell me why you pick on me."

"Easy, doctor. I looked at you and figured you're too ugly to be stupid and too smart to miss a possible opportunity at some good personal publicity."

"Remind me to knock you down some day," said Black. "What do you want to know?"

The man from Interplanetary Press pointed into the pit and said, "Is that thing going to work?"

Black looked downward, too, and felt a vague chill riffle over him like the thin night-wind of Mars. The pit was one large television screen, divided in two. One half was an overall view of It. On It's pitted gray surface was the *Parsec*, glowing mutedly in the feeble sunlight. The other half showed the control room of the *Parsec*. There was no life in that control room. In the pilot's seat was an object the vague humanity of which did not for a moment obscure the fact that it was only a positronic robot.

Black said, "Physically, mister, this will work. That robot will leave and come back. Space! how we suc-

ceeded with that part of it. I watched it all. I came here two weeks after I took my degree in etheric physics and I've been here, barring leave and furloughs, ever since. I was here when we sent the first piece of iron wire to Jupiter's orbit and back through hyperspace—and got back iron filings. I was here when we sent white mice there and back and ended up with mincemeat.

"We spent six months establishing an even hyper-field after that. We had to wipe out lags of as little as tenths of thousandths of seconds from point to point in matter being subjected to hyper-travel. After that, the white mice started coming back intact. I remember when we made holiday for a week because one white mouse came back alive and lived ten minutes before dying. Now they live as long as we can take proper care of them.

Ronson said, "Great!"

Black looked at him obliquely, "I said, *physically* it will work. Those white mice that come back—"

"Well?"

"No minds. Not even little white mice type minds. They won't eat. They have to be force-fed. They won't mate. They won't run. They sit. They sit. They sit. That's all. We finally worked our way up to sending a chimpanzee. It was pitiful. It was too close to a man to make watching it bearable. It came back a hunk of meat that could make crawling motions. It could move its eyes and sometimes it would scrabble. It whined and sat in its own wastes

without the sense to move. Somebody shot it one day, and we were all grateful for that. I tell you this, fella, nothing that ever went into hyperspace has come back with a mind."

"Is this for publication?"

"After this experiment, maybe. They expect great things of it." A corner of Black's mouth lifted.

"You don't?"

"With a robot at the controls? No." Almost automatically, Black's mind went back to that interlude, some years back, in which he had been unwittingly responsible for the near-loss of a robot.* He thought of the Nestor robots that filled Hyper Base with smooth, ingrained knowledge and perfectionist shortcomings. What was the use of talking about robots? He was not, by nature, a missionary.

But then Ronson, filling the continuing silence with a bit of small-talk, said, as he replaced the wad of gum in his mouth by a fresh piece, "Don't tell me *you're* anti-robot. I've always heard that scientists are the one group that aren't anti-robot."

Black's patience snapped. He said, "That's true, and that's the trouble. Technology's gone robot-happy. Any job has to have a robot, or the engineer in charge feels cheated. You want a door-stop; buy a robot with a thick foot. That's a serious thing." He was speaking in a low, intense voice, shoving the words directly into Ronson's ear.

*LITTLE Lost Robot, Astounding Science Fiction, March, 1947, page 111.

Ronson managed to extricate his arm. He said, "Hey, I'm no robot. Don't take it out on me. I'm a man. *Homo sapiens*. You just broke an armbone of mine. Isn't that proof?"

Having started, however, it took more than frivolity to stop Black. He said, "Do you know how much time was wasted on this setup? We've had a perfectly generalized robot built and we've given it one order. Period. I heard the order given. I've memorized it. Short and sweet. 'Seize the bar with a firm grip. Pull it toward you firmly. *Firmly!* Maintain your hold until the control board informs you that you have passed through hyperspace twice!'

"So at zero time, the robot will grab the control bar and pull it firmly toward himself. His hands are heated to blood temperature. Once the control bar is in position, heat expansion completes contact and hyperfield is initiated. If anything happens to his brain during the first trip through hyperspace it doesn't matter. All he need do is maintain position one micro-instant and the ship will come back and the hyperfield will flip off. Nothing can go wrong. Then we study all its generalized reactions and see what if anything has gone wrong."

Ronson looked blank, "This all makes sense to me."

"Does it?" asked Black, bitterly, "and what will you learn from a robot brain? It's positronic, ours is cellular. It's metal, ours is protein. They're not the same. There's no

comparison. Yet I'm convinced that on the basis of what they learn, or think they learn, from the robot, they'll send men into hyperspace. Poor devils! Look, it's not a question of dying. It's coming back mindless. If you'd seen the chimpanzee, you'd know what I mean. Death is clean and final. The other thing—"

The reporter said, "Have you talked about this to anyone?"

Black said, "Yes. They say what you said. They say I'm anti-robot and that settles everything. Look at Susan Calvin there. You can bet *she* isn't anti-robot. She came all the way from Earth to watch this experiment. If it had been a man at the controls, she wouldn't have bothered. But what's the use!"

"Hey," said Ronson, "don't stop now. There's more."

"More what?"

"More problems. You've explained the robot. But why the security provisions all of a sudden?"

"Huh?"

"Come on. Suddenly, I can't send dispatches. Suddenly, ships can't come into the area. What's going on? This is just another experiment. The public knows about hyperspace and what you boys are trying to do, so what's the big secret?"

The backwash of anger was still seeping over Black, anger against the robots, anger against Susan Calvin, anger at the memory of that little lost robot in his past. There was some to spare, he found, for the irritating little newsman and his irritating little questions.

He said to himself: *Let's see how it takes it.*

He said, "You really want to know?"

"You bet."

"All right. We've never initiated a hyperfield for any object a millionth as large as that ship, or to send anything a millionth as far. That means that the hyperfield that will soon be initiated is some million million times as energetic as any we've ever handled. We're not sure what it can do."

"What do you mean?"

"Theory tells us that the ship will be neatly deposited out near Sirius and neatly brought back here. But how large a volume of space about the *Parsec* will be carried with it. It's hard to tell. We don't know enough about hyperspace. The asteroid on which the ship sits may go with it and, you know, if our calculations are even a little off, it may never be brought back here. It may return—say, twenty billion miles away. And there's a chance that more of space than just the asteroid may be shifted."

"How much more?" demanded Ronson.

"We can't say. There's an element of statistical uncertainty. That's why no ships must approach too closely. That's why we're keeping things quiet till the experiment is safely over."

Ronson swallowed audibly. "Supposing it reaches to Hyper Base?"

"There's a chance of it," said

Black with composure. "Not much of a chance or Director Schloss wouldn't be here, I assure you. Still, there's a mathematical chance."

The newsman looked at his watch. "When does this all happen?"

"In about five minutes. You're not nervous, are you?"

"No," said Ronson, but he sat down blankly and asked no more questions.

Black leaned outward, over the railing. The final minutes were ticking off.

The robot moved!

There was a mass sway of humanity forward at that sign of motion and the lights dimmed in order to sharpen and heighten the brightness of the scene below. But so far it was only the first motion. The hands of the robot approached the starting bar.

Black waited for the final second when the robot would pull the bar toward himself. Black could imagine a number of possibilities and all sprang, nearly simultaneously, to mind.

There would first be the short flicker that would indicate the departure through hyperspace and return. Even though the time interval was exceedingly short, return would not be to the *precise* starting position and there would be a flicker. There always was.

Then, when the ship returned, it might be found, perhaps, that the devices to even the field over the huge volume of the ship had proved inadequate. The robot might be scrap steel. The ship might be scrap steel.

Or their calculations might be somewhat off and the ship might never return. Or worse still, Hyper Base might go with the ship and never return.

Or, of course, all might be well. The ship might flicker and be there in perfect shape. The robot, with mind untouched, would get out of his seat and signal a successful completion of the first voyage of a man-made object beyond the gravitational control of the sun.

The last minute was ticking off.

The last second came and the robot seized the starting-bar and pulled it firmly toward himself—

Nothing!

No flicker. Nothing!

The *Parsec* never left normal space.

Major General Kallner took off his officer's cap to mop his glistening forehead and in doing so exposed a bald head that would have aged him ten years in appearance if his drawn expression had not already done so. Nearly an hour had passed since the *Parsec's* failure and nothing had been done.

"How did it happen? How did it happen? I don't understand it."

Dr. Mayer Schloss who, at forty, was the "grand old man" of the young science of hyperfield matrices, said, hopelessly, "There is nothing wrong with the basic theory. I'll swear my life away on that. There's a mechanical failure on the ship somewhere. Nothing more." He had said that a dozen times.

"I thought everything was tested." That had been said, too.

"It was, sir, it was. Just the same—" And that.

They sat staring at each other in Kallner's office which was now out of bounds for all personnel. Neither quite dared to look at the third person present.

Susan Calvin's thin lips and pale cheeks bore no expression. She said, coolly, "You may console yourself with what I have told you before. It is doubtful whether anything useful would have resulted."

"This is not the time for the old argument," groaned Schloss.

"I am not arguing. United States Robots & Mechanical Men, Inc. will supply robots made up to specification to any legal purchaser for any legal use. We did our part, however. We informed you that we could not guarantee being able to draw conclusions with regard to the human brain from anything that happened to the positronic brain. Our responsibility ends there. There is no argument."

"Great Space," said General Kallner, in a tone that made the expletive feeble indeed. "Let's not discuss that."

"What else was there to do?" muttered Schloss, driven to the subject, nevertheless. "Until we know exactly what's happening to the mind in hyperspace we can't progress. The robot's mind is at least capable of mathematical analysis. It's a start, a beginning. And until we try—" He looked up wildly, "But your robot isn't the point, Dr. Calvin. We're

not worried about him or his positronic brain. Woman—" His voice rose nearly to a scream.

The robotpsychologist cut him to silence with a voice that scarcely raised itself from its level monotone. "No hysteria, man. In my lifetime, I have witnessed many crises and I have never seen one solved by hysteria. I want answers to some questions."

Schloss' full lips trembled and his deep-set eyes seemed to retreat into their sockets and leave pits of shadow in their places. He said, harshly, "Are you trained in etheric engineering?"

"That is an irrelevant question. I am Chief Robotpsychologist of the United States Robots & Mechanical Men, Inc. That is a positronic robot sitting at the controls of the *Parsec*. Like all such robots, it is leased and not sold. I have a right to demand information concerning any experiment in which such a robot is involved."

"Talk to her, Schloss," barked General Kallner. "She's . . . she's all right."

Dr. Calvin turned her pale eyes on the general, who had been present at the time of the affair of the lost robot and who, therefore, could be expected not to make the mistake of underestimating her. (Schloss had been out on sick leave, at the time, and later hearsay is not as effective as personal experience.) "Thank you, general," she said.

Schloss looked helplessly from one



to the other and muttered, "What do you want to know?"

"Obviously my first question is: What *is* your problem if the robot is not?"

"But the problem is an obvious one. The ship hasn't moved. Can't you see that? Are you blind?"

"I see quite well. What I don't see is your obvious panic over some mechanical failure. Don't you people expect failure sometimes?"

The general muttered, "It's the expense. The ship was hellishly expensive. The World Congress . . . appropriations—" He bogged down.

"The ship's still there. A slight overhaul and correction would involve no great trouble."

Schloss had taken hold of himself. The expression on his face was one of a man who had caught his soul in both hands, shaken it hard and

set it on its feet. His voice had even achieved a kind of patience. "Dr. Calvin, when I say a mechanical failure, I mean something like a relay jammed by a speck of dust, a connection inhibited by a spot of grease, a transistor balked by a momentary heat expansion. A dozen other things. A hundred other things. Any of them can be quite temporary. They can stop taking effect at any moment."

"Which means that at any moment, the *Parsec* may flash through hyperspace and back after all."

"Exactly. Now do you understand?"

"Not at all. Wouldn't that be just what you want?"

Schloss made a motion that looked like the start of an effort to seize a double handful of hair and yank. He said, "You are not an ethetics engineer."

"Does that tongue-tie you, doctor?"

"We had the ship set," said Schloss, despairingly, "to make a jump from a definite point in space relative to the center of gravity of the galaxy to another point. The return was to be to the original point corrected for the motion of the Solar System. In the hour that has passed since the *Parsec* should have moved, the Solar System has shifted position. The original parameters to which the hyperfield is adjusted no longer apply. The ordinary laws of motion do not apply to hyperspace and it would take us a week of computation to calculate a new set of parameters. We can't even guess approximately."

"You mean that if the ship moves now it will return to some unpredictable point thousands of miles away?"

"Unpredictable?" Schloss smiled hollowly. "Yes, I should call it that. The *Parsec* might end up in the Andromeda nebula or in the center of the sun. In any case the odds are against our ever seeing it again."

Susan Calvin nodded. "The situation then is that if the ship disappears, as it may do at any moment, a few billion dollars of the taxpayer's money may be irretrievably gone, and—it will be said—through bungling."

Major General Kallner could not have winced more noticeably if he had been poked with a sharp pin.

The robopsychologist went on, "Somehow, then, the ship's hyperfield mechanism must be put out of

action, and that as soon as possible. Something will have to be unplugged or jerked loose or flicked off." She was speaking half to herself.

"It's not that simple," said Schloss. "I can't explain it completely, since you're not an etherics expert. It's like trying to break an ordinary electric circuit by slicing through high-tension wire with garden shears. It could be disastrous. It *would* be disastrous."

"Do you mean that any attempt to shut off the mechanism would hurl the ship into hyperspace?"

"Any *random* attempt would *probably* do so. Hyper-forces are not limited by the speed of light. It is very probable that they have no limit of velocity at all. It makes things extremely difficult. The only reasonable solution is to discover the nature of the failure and learn from that a safe way of disconnecting the field."

"And how do you propose to do that, Dr. Schloss?"

Schloss said, "It seems to me that the only thing to do is to send one of our Nestor robots—"

"No! Don't be foolish," broke in Susan Calvin.

Schloss said, freezingly, "The Nestors are acquainted with the problems of etheric engineering. They will be ideally—"

"Out of the question. You cannot use one of our positronic robots for such a purpose without my permission. You do not have it and you shall not get it."

"What is the alternative?"

"You must send one of your engineers."

Schloss shook his head violently, "Impossible. The risk involved is too great. If we lose a ship *and* a man—"

"Nevertheless, you may not use a Nestor robot, or any robot."

The general said, "I . . . I must get in touch with Earth. This whole problem has to go to a higher level."

Susan Calvin said with asperity, "I wouldn't just yet if I were you, general. You will be throwing yourself on the government's mercy without a suggestion or plan of action of your own. You will not come out very well, I am certain."

"But what is there to do?" The general was using his handkerchief again.

"Send a man. There is no alternative."

Schloss had paled to a pasty gray. "It's easy to say, send a man. But whom?"

"I've been considering that problem. Isn't there a young man—his name is Black—whom I met on the occasion of my previous visit to Hyper Base?"

"Dr. Gerald Black?"

"I think so. Yes, He was a bachelor then. Is he still?"

"Yes, I believe so."

"I would suggest that he be brought here, say, in fifteen minutes, and that meanwhile I have access to his records."

Smoothly, she had assumed authority in this situation, and neither Kallner nor Schloss made any attempt to dispute that authority with her.

Black had seen Susan Calvin from a distance on this, her second visit to Hyper Base. He had made no move to cut down the distance. Now that he had been called into her presence, he found himself staring at her with repulsion and distaste. He scarcely noticed Dr. Schloss and General Kallner standing quietly behind her.

He remembered the last time he had faced her thus, undergoing a cold dissection for the sake of a lost robot.

Dr. Calvin's cool, gray eyes were fixed steadily on his hot brown ones.

"Dr. Black," she said, "I believe you understand the situation."

Black said, "I do."

"Something will have to be done. The ship is too expensive to lose. The bad publicity will probably mean the end of the project."

Black nodded. "I've been thinking that."

"I hope you've also thought that it will be necessary for someone to board the *Parsec*, find out what's wrong, and . . . uh . . . deactivate it."

There was a moment's pause. Black said, harshly, "What fool would go?"

Kallner frowned and looked at Schloss, who bit his lip and looked nowhere.

Susan Calvin said, "There is, of course, the possibility of accidental activation of the hyperfield, in which case, the ship may drive beyond all possible reach. On the other hand, it may return somewhere within the Solar System. If so, no expense or

effort will be spared to recover man and ship."

Black said, "Idiot and ship! Just a correction."

Susan Calvin disregarded the comment. She said, "I have asked General Kallner's permission to put it to you. It is you who must go."

No pause at all here. Black said, in the flattest possible way, "Lady, I'm not volunteering."

"There are not a dozen men on Hyper Base with sufficient knowledge to have any chance at all of carrying this thing through successfully. Of those who have the knowledge, I've selected you on the basis of our previous acquaintanceship. You will bring to this task an understanding—"

"Look, I'm *not* volunteering. In fact, I'm not even going!"

"You have no choice. Surely you will face your responsibility?"

"My responsibility? What makes it mine?"

"The fact that you are best fitted for the job?"

"Do you know the risk?"

"I think I do," said Susan Calvin.

"I know you don't. You never saw that chimpanzee. Look, when I said 'idiot and ship' I wasn't expressing an opinion. I was telling you a fact. I'll risk my life if I have to. Not with pleasure, maybe, but I'd risk it. Risking idiocy, a lifetime of animal mindlessness, is something I won't risk. That's all."

Susan Calvin glanced thoughtfully at the young engineer's sweating, angry face.

Black shouted, "Send one of your robots; one of your NS-2 jobs."

The psychologist's eye reflected a kind of cold glitter. She said, with deliberation, "Yes, Dr. Schloss suggested that. But the NS-2 robots are leased by our firm, not sold. I represent the company and I have decided that they are not to be risked in a matter such as this."

Black lifted his hands. They clenched and trembled close to his chest as though he were forcibly restraining them. "You're telling me . . . you're saying you want me to go instead of a robot because I'm more expendable."

"You can interpret it that way if you wish."

"Dr. Calvin," said Black, "I'd see you in hell, first."

"That statement might be almost literally true, Dr. Black. As General Kallner will confirm, you are ordered to take this assignment. You are under quasi-military law here, I understand, and if you refuse an assignment, you can be court-martialed. A case like this will mean Mercury prison and I believe that will be close enough to hell to make your statement uncomfortably accurate were I to visit you, though I probably would not. On the other hand, if you agree to board the *Parsec* and carry through this job, it will mean a great deal for your career."

Black glared, red-eyed, at her.

Susan Calvin said, "Give the man five minutes to think about this, General Kallner, and get a ship ready."

Two security guards escorted Black out of the room.

Gerald Black felt cold. His limbs moved as though they were not part of him. It was as though he were watching himself from some remote, safe place, watching himself board a ship and make ready to leave for It and for the *Parsec*.

He couldn't quite believe it. He had bowed his head suddenly and said, "I'll go."

But why?

He had never thought of himself as the hero type. Then why? Partly, of course, there was the threat of Mercury prison. Partly, it was the awful reluctance to appear a coward in the eyes of those who knew him, that deeper cowardice that was behind half the bravery in the world.

Mostly, though, it was something else.

Ronson of Interplanetary Press had stopped Black momentarily as he was on his way to the ship. Black looked at Ronson's flushed face and said, "What do you want?"

Ronson babbled, "Listen! When you get back, I want it exclusive. I'll arrange any payment you want . . . anything you want—"

Black pushed him aside, sent him sprawling, and walked on.

The ship had a crew of two. Neither spoke to him. Their glances slid over and under and around him. Black didn't mind that. They were scared spitless themselves and their ship was approaching the *Parsec* like a kitten skittering sideways toward

the first dog it had ever seen. He could do without *them*.

There was only one face that he kept seeing. The anxious expression of General Kallner and the look of synthetic determination on Schloss' face were momentary punctures on his consciousness. They healed almost at once. It was Susan Calvin's untroubled face that he saw. Her calm expressionlessness as he boarded the ship.

He stared into the blackness where Hyper Base had disappeared into space—

Susan Calvin! Doctor Susan Calvin! Robotpsychologist Susan Calvin! The robot that walks like a woman!

What were her three laws, he wondered. First Law: Thou shalt protect the robot with all thy might and all thy heart and all thy soul. Second Law: Thou shalt hold the interests of United States Robots & Mechanical Men, Inc. holy provided it interfereth not with the First Law. Third Law: Thou shalt give passing consideration to a human being provided it interfereth not with the First and Second Law.

Was she ever young, he wondered savagely? Had she ever felt one honest emotion?

Space! How he wanted to do something—something that would take that frozen look of nothing off her face.

And he would!

By the stars, he would. Let him but get out of this sane and he would see her smashed and her company with her and all the vile brood of

robots with them. It was that thought that was driving him more than fear of either prison or social prestige. It was that thought that almost robbed him of fear altogether. Almost.

One of the pilots muttered at him, without looking, "You can drop down from here. It's half a mile under."

Black said, bitterly, "Aren't you landing?"

"Strict orders not to. The vibration of the landing might—"

"What about the vibration of my landing?"

The pilot said, "I've got my orders."

Black said no more but climbed into his suit and waited for the inner lock to open. A tool kit was welded firmly to the metal of the suit about his right thigh.

Just as he stepped in to the lock, the earpieces inside his helmet rumbled at him. "Wish you luck, doctor."

It took a moment for him to realize that it came from the two men aboard ship, pausing in their eagerness to get out of that haunted volume of space, to give him that much, anyway.

"Thanks," said Black awkwardly, half-resentfully.

And then he was out in space, tumbling slowly as the result of the slightly off-center thrust of feet against outer lock.

He could see the *Parsec* waiting for him, and by looking between his legs at the right moment of the tumble, he could see the long hiss

of the lateral jets of the ship that had brought him, as it turned to leave.

He was alone! Space, he was alone!

Could any man in history ever have felt so alone?

Would he know, he wondered sickly, if—if anything happened? Would there be any moments of realization? Would he feel his mind fade and the light of reason and thought dim and blank out?

Or would it happen suddenly, like the cut of a force-knife?

In either case—

The thought of the chimpanzee, blank-eyed, shivering with mindless terrors, was fresh within him.

The asteroid was twenty feet below him now. It swam through space with an absolutely even motion. Barring human agency, no grain of sand upon it had as much as stirred through astronomical periods of time.

In the ultimate jarlessness of It, some small particle of grit encumbered a delicate working unit on board the *Parsec*, or a speck of impure sludge in the fine oil that bathed some moving part had stopped it.

Perhaps it required only a small vibration, a tiny tremor originating from the collision of mass and mass to unencumber that moving part, bringing it down along its appointed path, creating the hyperfield, blossoming it outward like an incredibly-ripening rose.

His body was going to touch It and he drew his limbs together in

his anxiety to "hit easy." He did not want to touch the asteroid. His skin crawled with intense aversion.

It came closer.

Now . . . now—

Nothing!

There was only the continuing touch of the asteroid, the uncanny moments of slowly mounting pressure that resulted from a mass of two hundred fifty pounds—himself plus suit—possessing full interia but no weight to speak of.

Black opened his eyes slowly and let the sight of stars enter. The sun was a glowing marble, its brilliance muted by the polarizing shield over his faceplate. The stars were correspondingly feeble but they made up the familiar arrangement. With sun and constellations normal, he was still in the Solar System. He could even see Hyper Base, a small, dim crescent.

He stiffened in shock at the sudden voice in his ear. It was Schloss.

Schloss said, "We've got you in view, Dr. Black. You are not alone!"

Black could have laughed at the phraseology, but he only said in a low, clear voice, "Clear off. If you'll do that, you won't be distracting me."

A pause. Schloss' voice, more cajoling: "If you care to report as you go along, it may relieve the tension."

"You'll get information from me when I get back. Not before." He said it bitterly, and, bitterly, his metal-encased fingers moved to the

control panel in his chest and blanked out the suit's radio. They could talk into a vacuum now. He had his own plans. If he got out of this sane, it would be *his* show.

He got to his feet with infinite caution and stood on it. He swayed a bit as involuntary muscular motions, tricked by the almost total lack of gravity into an endless series of overbalancings, pulled him this way and that. On Hyper Base, there was a pseudogravitic field to hold them down. Black found that a portion of his mind was sufficiently detached to remember that and appreciate it in *absentia*.

The sun had disappeared behind a crag. The stars wheeled visibly in time to the asteroid's one-hour rotation period.

He could see the *Parsec* from where he stood and now he moved toward it slowly, carefully, tippy-toe almost. (No vibration. No vibration. The words ran pleadingly through his mind.)

Before he was completely aware of the distance he had crossed, he was at the ship. He was at the foot of the line of hand-grips that led to the outer lock.

There he paused.

The ship looked quite normal. Or at least, it looked normal except for the circle of steely knobs that girdled it one third of the way upward, and a second circle two thirds of the way upward. At the moment, they must be straining to become the source-poles of the hyperfield.

A strange desire to reach up and

fondle one of them came over Black. It was one of those irrational impulses, like the momentary thought: "What if I jumped?" that was almost inevitable when staring down from a high building.

Black took a deep breath and felt himself go clammy as he spread the fingers of both hands, and then lightly, so lightly, put each hand flat against the side of the ship.

Nothing!

He seized the lowest hand-grip and pulled himself up, carefully. He longed to be as experienced at null-gravity manipulation as were the construction men. You had to exert enough force to overcome inertia and then stop. Continue the pull a second too long and you would overbalance, careen into the side of the ship.

He climbed slowly, tippy-fingers, his legs and hips swaying to the right as his left arm reached upward, to the left as his right arm reached upward.

A dozen rungs, and his fingers hovered over the contact that would open the outer lock. The safety marker was a tiny green smear.

Once again he hesitated. This was first use he would make of ship's power. His mind ran over the wiring diagrams and the force distributions. If he pressed the contact, power would be siphoned off the micro-pile to pull open the massive slab of metal that was the outer lock.

Well?

What was the use? Unless he had some idea as to what was wrong,

there was no way of telling the effect of the power diversion. He sighed and touched contact.

Smoothly, with neither jar nor sound, a segment of the ship curled open. Black took one more look at the friendly constellations—they had not changed—and stepped into the softly-illuminated cavity. The outer lock closed behind him.

Another contact now. The inner lock had to be opened. Again he paused to consider. Air pressure within the ship would drop ever so slightly as the inner lock opened and seconds would pass before ship's electrolyzers could make up the loss.

Well?

The Bosch posterior-plate, to name one item, was sensitive to pressure, but surely not *this* sensitive.

He sighed again, more softly—the skin of his fear was growing calloused—and touched contact. The inner lock opened.

He stepped into the pilot room of the *Parsec*, and his heart jumped oddly when the first thing he saw was the visiplate, set for reception and powdered with stars. He forced himself to look at them.

Nothing!

Cassiopeia was visible. The constellations were normal and he was inside the *Parsec*. Somehow he could feel the worst was over. Having come so far and remained within the Solar System, having kept his mind so far, something that was faintly like confidence began to seep back.



There was almost a supernatural stillness about the *Parsec*. Black had been in many ships in his life and there had always been the sounds of life, even if only the scuffing of a shoe or a humming cabin boy in the corridor. Here, the very beating of his own heart seemed muffled to soundlessness.

The robot in the pilot's seat had its back to him. It indicated by no response that it was aware of his having entered.

Black bared his teeth in a savage grin and said sharply, "Release the bar! Stand up!" The sound of his voice was thunderous in the close quarters.

Too late, he dreaded the air vibrations his voice set up, but the stars on the visiplate remained unchanged.

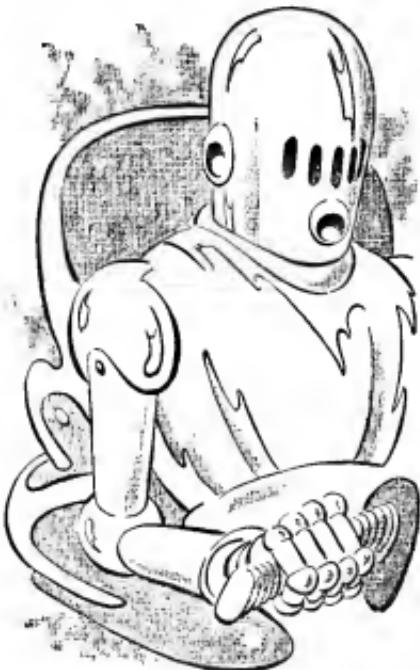
The robot, of course, did not stir.

It could receive no sensations of any sort. It could not even respond to the First Law. It was frozen in the unending middle of what should have been an almost instantaneous process.

He remembered the orders it had been given. They were open to no misunderstanding: "Seize the bar with a firm grip. Pull it toward you firmly. Firmly! Maintain your hold until the control board informs you that you have passed through hyperspace twice."

Well, it had not yet passed through hyperspace once.

Carefully, he moved closer to the robot. It sat there with the bar pulled firmly back between its knees. That brought the trigger-mechanism



almost into place. The temperature of his metal hands then curled that trigger, thermocouple-fashion, just efficiently for contact to be made. Automatically, Black glanced at the thermometer-reading set into the control board. The robot's hands were at 37 Centigrade as they should be.

He thought sardonically: *Fine thing. I'm alone with this machine and I can't do anything about it.*

What he would have liked to do was take a crowbar to it and mash it to filings. He enjoyed the flavor of that thought. He could see the horror on Susan Calvin's face—if any horror could creep through the ice, the horror of a smashed robot was it. Like all positronic robots, this one-shot was owned by United States Robots, had been made there, had been tested there.

And having extracted what juice he could out of imaginary revenge, he sobered and looked about the ship. He stirred uneasily.

After all, progress so far had been zero.

Slowly, he removed his suit. Gently, he laid it on the rack. gingerly, he walked from room to room, studying the large, interlocking surfaces of the hyperatomic motor, following the cables, inspecting the field-relays.

He touched nothing. There were a dozen ways of deactivating the hyperfield but each one would be ruinous unless he knew at least approximately where the error lay and

let his exact course of procedure be guided by that.

He found himself back at the control panel and cried in exasperation at the grave stolidity of the robot's broad back, "Tell me, will you? What's wrong?"

There was the urge to attack the ship's machinery at random. Tear at it and get it over with. He repressed the impulse firmly. If it took him a week, he would deduce, somehow, the proper point of attack. He owed that much to Dr. Susan Calvin and his plans for her. He had to solve this if he was to pay her—

He turned slowly on his heel and considered. Every part of the ship, from the engine itself to each individual two-way toggle switch had been exhaustively checked and tested on Hyper Base. It was almost impossible to believe that anything could go wrong. There wasn't a thing on board ship—

Well, yes, there was, of course. The robot! That had been tested at United States Robots and they could be assumed to be competent.

What was it everyone always said: A robot can just naturally do a better job.

It was the normal assumption, based in part on United States Robots' own advertising campaigns. They could make a robot that would be better than a man for a given purpose. Not "as good as a man," but "better than a man."

And as Gerald Black stared at the robot and thought that, his brows contracted under his low forehead

and his look became compounded of astonishment and a wild hope.

He approached and circled the robot. He stared at its arms holding the control bar in trigger-position, holding it forever so unless the ship jumped or the robot's own power supply gave out.

Black breathed, "I bet. I bet."

He stepped away, considered deeply. He said, "It's got to be."

He turned on ship's radio. Its carrier beam was already focused on Hyper Base. He barked into the mouthpiece, "Hey, Schloss."

Schloss was prompt in his answer. "Great Space, Black—"

"Never mind," said Black, crisply. "No speeches. I just want to make sure you're watching."

"Yes, of course. We all are. Look—"

But Black turned off the radio. He grinned with tight one-sidedness at the TV camera inside the pilot room and chose a portion of the hyperfield mechanism that would be in view. He didn't know how many people would be in the viewing room. There might be only Kallner, Schloss and Susan Calvin. There might be all personnel. In any case, he would give them something to watch.

Relay Box #3 was adequate for the purpose, he decided. It was located in a wall recess, coated over with a smooth cold-seamed panel. Black reached into his tool kit and removed the splayed blunt-edged seamer. He pushed his spacesuit farther back on the rack—having

turned it to bring the tool kit in reach—and turned to the relay box.

Ignoring a last tingle of uneasiness, Black brought up the seamer, made contact at three separated points along the cold seam. The tool's force-field worked deftly and quickly, the handle growing a trifle warm in his hand as the surge of energy came and left. The panel swung free.

He glanced quickly, almost involuntarily, at the ship's visiplate. The stars were normal. He, himself, felt normal.

That was the last bit of encouragement he needed. He raised his foot and smashed his shoe down on the feather-delicate mechanisms within the recess.

There was a splinter of glass, a twisting of metal, and a tiny spray of mercury droplets—

Black breathed heavily. He turned on the radio once more. "Still there, Schloss."

"Yes, but—"

"Then I report the hyperfield on board the *Parsec* to be deactivated. Come and get me."

Gerald Black felt no more the hero than when he had left for the *Parsec*, but he found himself one just the same. The men who had brought him to the small asteroid came to take him off. They landed this time. They clapped his back.

Hyper Base was a crowded mass of waiting personnel when the ship arrived and Black was cheered. He waved at the throng and grinned,

as was a hero's obligation, but he felt no triumph inside. Not yet. Only anticipation. Triumph would come later, when he met Susan Calvin.

He paused, before descending from the ship. He looked for her and did not see her. General Kallner was there, waiting with all his soldierly stiffness restored, and a bluff look of approval firmly plastered on his face. Mayer Schloss smiled nervously at him. Ronson of Interplanetary Press waved frantically. Susan Calvin was nowhere.

He brushed Kallner and Schloss aside when he landed. "I'm going to wash and eat first."

He had no doubts but that, for the moment at least, he could dictate terms to the general or to anybody.

The security guards made a way for him. He bathed and ate leisurely in enforced isolation, he himself being solely responsible for the enforcement. Then he called Ronson of Interplanetary and talked to him briefly. (It had all worked out so much better than he had expected. The very failure of the ship had conspired perfectly with him.)

Finally, he called the general's office and ordered a conference. It was what it amounted to—orders. Major General Kallner all but said, "Yes, sir."

They were together again. Gerald Black, Kallner, Schloss—even Susan Calvin. But it was Black who was dominant now. The robotpsychologist, graven-faced as ever, as unim-

pressed by triumph as by disaster, had nevertheless seemed by some subtle change of attitude to have relinquished the spotlight.

Dr. Schloss nibbled a thumbnail and began by saying, cautiously: "Dr. Black, we are all very grateful for your bravery and success." Then, as though to institute a healthy deflation at once, he added, "Still, smashing the relay box with your heel was imprudent and . . . well, it was an action that scarcely deserved success."

Black said, "It was an action that could scarcely have avoided success. You see"—this was bomb number one—"by that time I knew what had gone wrong."

Schloss rose to his feet. "You did? Are you sure?"

"Go there yourself. It's safe now. I'll tell you what to look for."

Schloss sat down again, slowly. General Kallner was enthusiastic. "Why, this is the best yet, if true."

"It's true," said Black. His eyes slid to Susan Calvin, who said nothing.

Black was enjoying the sensation of power. He released bomb number two by saying, "It was the robot, of course. Did you hear that, Dr. Calvin?"

Susan Calvin spoke for the first time. "I hear it. I rather expected it, as a matter of fact. It was the only piece of equipment on board ship that had not been tested at Hyper Base."

For a moment, Black felt dashed. He said, "You said nothing of that."

Dr. Calvin said, "As Dr. Schloss said several times, I am not an etherics expert. My guess, and it was no more than that, might easily have been wrong. I felt I had no right to prejudice you in advance of your mission."

Black said, "All right, did you happen to guess *how* it went wrong?"

"No, sir."

"Why, it was made better than a man. That's what the trouble was. Isn't it strange that the trouble should rest with the very specialty of United States Robots? They make robots better than men, I understand."

He was slashing at her with words now but she did not rise to his bait.

Instead, she sighed. "My dear Dr. Black. I am not responsible for the slogans of our sales-promotion department."

Black felt dashed again. She was not an easy woman to handle, this Calvin. He said, "Your people built a robot to replace a man at the controls of the *Parsec*. He had to pull the control bar toward himself, place it in position and let the heat of his hands twist the trigger to make final contact. Simple enough, Dr. Calvin?"

"Simple enough, Dr. Black."

"And if the robot had been made no better than a man, he would have succeeded. Unfortunately, United States Robots felt compelled to make him better than a man. The robot was told to pull back the control bar firmly. *Firmly*. The word was

repeated, strengthened, emphasized. So the robot did what he was told. He pulled it back firmly. There was only one trouble. He was easily ten times stronger than the ordinary human being for whom the control bar was designed."

"Are you implying—"

"I'm *saying* the bar bent. It bent back just enough to misplace the trigger. When the heat of the robot's hand twisted the thermocouple, it did *not* make contact." He grinned, "This isn't the failure of just one robot, Dr. Calvin. It's symbolic of the failure of the robot idea."

"Come now, Dr. Black," said Susan Calvin, icily, "You're drowning logic in missionary psychology. The robot was equipped with adequate understanding as well as with brute force. Had the men who gave it its orders used quantitative terms rather than the foolish adverb 'firmly,' this would not have happened. Had they said, 'apply a pull of fifty-five pounds' all would have been well."

"What you are saying," said Black, "is that the inadequacy of a robot must be made up for by the ingenuity and intelligence of a man. I assure you that the people back on Earth will look at it in that way and will not be in the mood to excuse United States Robots for this fiasco."

Major General Kallner said quickly, with a return of authority to his voice, "Now wait, Black, all that has happened is obviously classified information."

"In fact," said Schloss, suddenly,

"your theory hasn't been checked yet. We'll send a party to the ship and find out. It may not be the robot at all."

"You'll take care to make that discovery, will you? I wonder if the people will believe an interested party. Besides which, I have one more thing to tell you." He readied bomb number three and said, "As of this moment, I'm resigning from this man's project. I'm quitting."

"Why?" said Susan Calvin.

"Because as you said, Dr. Calvin, I am a missionary," said Black, smiling. "I have a mission. I feel I owe it to the people of Earth to tell them that the age of the robots has reached the point where human life is valued less than robot life. It is now possible to order a man into danger because a robot is too precious to risk. I believe Earthmen should hear that. Many men have many reservations about robots as is. United States Robots has not yet succeeded in making it legally permissible to use robots on the planet, Earth, itself. I believe that what I have to say, Dr. Calvin, will complete the matter. For this day's work, Dr. Calvin, you and your company and your robots will be wiped off the face of the Solar System."

He was forewarning her, Black knew; he was forearming her, but he could not forego this scene. He had lived for this very moment, ever since he had first left for the *Parsec* and he could not give it up.

He all but gloated at the momentary glitter in Susan Calvin's pale

eyes and at the faintest flush in her cheeks. He thought: *How do you feel now, madam scientist?*

Kallner said, "You will not be permitted to resign, Black, nor will you be permitted—"

"How can you stop me, general? I'm a hero, haven't you heard. And old mother Earth *will* make much of its heroes. It always has. They'll want to hear from me and they'll believe anything I say. And they won't like it if I'm interfered with, at least not while I'm a fresh, brand-new hero. I've already talked to Ronson of Interplanetary Press and told him I had something big for them; something that would rock every government official and science director right out of the chair-plush, so Interplanetary will be first in line, waiting to hear from me. What can you do except to have me shot? And I think you'd be worse off after that, if you tried it."

Black's revenge was complete. He had spared no word. He had stinted himself not in the least. He rose to go.

"One moment, Dr. Black," said Susan Calvin. Her low voice carried authority.

Black turned involuntarily, like a schoolboy at his teacher's voice, but he counteracted that gesture by a deliberately mocking, "You have an explanation to make, I suppose?"

"Not at all," she said, primly. "You have explained for me, and quite well. I chose you because I knew you would understand, though

I thought you would understand sooner. I had had contact with you before. I knew you disliked robots and would, therefore, be under no illusions concerning them. From your records, which I asked to see before you were given your assignment, I saw that you had expressed disapproval of this robot-through-hyper-space experiment. Your superiors held that against you, but I thought it a point in your favor."

"What are you talking about, doctor, if you'll excuse my rudeness?"

"The fact that you should have understood why no robot could have been sent on this mission. What was it you yourself said? Something about a robot's inadequacies having to be made up by the ingenuity and intelligence of a man. Exactly so, young man, exactly so. Robots have no ingenuity. Their minds are finite and can be calculated to the last decimal. That, in fact, is my job.

"Now if a robot is given an order, a *precise* order, he can follow it. If the order is not precise, he cannot correct his own mistake without further orders. Isn't that what you reported concerning the robot on the ship? How then can we send a robot to find a flaw in a mechanism when we cannot possibly give precise orders since we know nothing about the flaw ourselves. 'Find out what's wrong' is not an order you can give to a robot; only to a man. The human brain, so far at least, is beyond calculation."

Black sat down abruptly and stared at the psychologist in dismay. Her

words struck sharply on a substratum of understanding that had been larded over with emotion. He found himself unable to refute her. Worse than that, a feeling of defeat encompassed him.

He said, "You might have said this before I left."

"I might have," agreed Dr. Calvin, "but for two critical factors. Since you did not want to go, you would have been able to think of an answer to any contingency I could suggest—that ability to do so being precisely why you, and not a robot had to go!—and so would have been able to effectively refute any argument I might have proposed. You could answer any *named* problem—and were, at that time, quite unable to accept that the problem was inherently *un-namable*.

"The second critical factor tied in with that problem. Such a discussion would have lasted hours, with high emotional tension. You would have gone already brain-weary, and defeated. The ideal psychosomatic situation for a human being entering on so dangerous a task is one of angry tension; Nature developed the mechanisms of anger in us for precisely such work, and they make us capable of high concentration, high alertness, and quick evaluation of a situation. You went angrily determined to beat us, your oppressors.

"It worked out satisfactorily, I think."

Black said, "I'll be damned."

Susan Calvin said, "So now, if you'll take my advice, return to your

job, accept your status as hero, and tell your reporter friend the details of your brave deed. Let that be the big news you promised him."

Slowly, reluctantly, Black nodded.

Schloss looked relieved; Kallner burst into a toothy smile. They held out hands, not having said a word in all the time that Susan Calvin

had spoken, and not saying a word now.

Black took their hands and shook them with some reserve. He said, "It's your part that should be publicized, Dr. Calvin."

Susan Calvin said, icily, "Don't be a fool, young man. This is my job."

THE END

VERY SHORT STORY

The Galactic Federation Survey ship landed on Achoo IV, and found that the highly intelligent race which dominated that planet had no less than three races of intelligent slaves. Of course, the Articles of Confederation of the Galactic Federation forbid slavery, and require that slaves be freed wherever found. Commander Noble explained this to Thronk, the Achoonian leader.

Thronk looked at the gleaming metal device standing beside Commander Noble. "And what, sir, is that?"

"That," said Commander Noble, "is a robot—a metallic device created by our engineering techniques."

"Ah," said Thronk. "I see. It is intelligent, and serves you. Well, you must understand that we, Commander, are biological engineers. We work with protoplasm, which is far superior to metal for structures, since it is self-repairing. Now, will you please define this term 'slave' in engineering terms, so that I can understand why your engineered servants differ from ours? I am also confused by this; you can be ordered to perform an action very likely to lead to your own destruction... yet you are not a slave?"

At last reports, the Galactic Congress was still seeking an acceptable definition of the terms involved.

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Illustrated by van Dongen

WATCH YOUR STEP

The thing you can't possibly do is the thing you just can't become interested in doing. It isn't that hard, exactly ... it's just so boring.

BY ALGIS BUDRYS

WATCH YOUR STEP

The admiral frowned thoughtfully down at the charts. Absently, he rubbed his cheek with the blunt end of a pencil. Then he tapped the chart. "This one seems the most suitable," he said to his aide. "What do you think of establishing a forward base in this area, Cargre?" He bent to read the minute lettering. "This . . . this . . . Cargre, is that word Sol? The light is very bad."

Cargre bent forward and peered. He grimaced in annoyance and wiped his fingers over the surface. "There seems to be a smudge on the chart, sir," he muttered, bending closer. "Yes, sir," he said, straightening. "Sol. That's a foreign word—native,

probably. They must have been contacted some time."

Admiral Tarlaten raised an eyebrow. "Don't you know definitely?"

The aide apologized. "I'm afraid not, admiral. It's a very minor system. I'll check the ship's references," he said, turning immediately to the intercommunicator. He spoke into it briefly, waited, received some reply, spoke at greater length, waited another, longer interval, was supplied with the additional answer, shrugged, and switched off.

The admiral had been waiting patiently, his gaze on the chart, his hand on his jaw. Without looking up, he twitched his head interrogatively.

"It's barely listed in our catalogues, sir. Ten planets, only one of them permanently inhabited. That would be Terra. We have no survey report on it—apparently, it was made quite a while ago. Someone must have decided it was too out-of-date to be retained, but no new one has yet been filed."

The admiral grimaced. He surveyed the chart again, shaking his head. "Well, there seems to be nothing else in the area. I'm afraid we'll just have to settle for . . . for—"

"Terra, sir. Of Sol."

"Yes. Thank you, Cargre." He turned away from the chart. "Awkward name to remember," he observed. "Any idea of what these Terrestrials are like?"

Cargre shook his head. "I'm afraid not, sir."

Admiral Tarlaten grimaced again. "It seems we'll have to furnish our

own survey." He scratched his neck philosophically. "Well, if we're ever to launch a decent campaign against the Tratens, we'll be slopping through deeper backwaters than even this . . . Cargre, what's that name again?"

His aide had to snatch a glance at the chart before he could answer.

Cargre stood at the main screens, one step behind the admiral, as the flagship floated down. Terra had turned out to be a drab planet, from her puffy white clouds and brilliant blue skies to the deep, heaving green of her oceans. Monotonous mountain chains, draped in every shade of green and brown, crowned with white fire, shambled along the spines of her continents. The deep, breeze-stirred grass of her plains stretched out for unrelenting miles. The natives and their inconsiderable works broke the monotonous topography only with fresh monotony.

The flagship stopped its descent at an altitude of fifteen miles and waited, hovering. Cargre felt the shock tingle up through the deck as the landing party broke away.

Admiral Tarlaten brooded at the screens. "Well," he sighed at last, "it has a breathable atmosphere. Not a very attractive place, is it?"

Cargre shook his head. "I can understand why Survey hasn't bothered to re-check it."

The admiral nodded slightly. "That central plain" he muttered to himself, "ought to make a good supply dump. Bleak place. Have to

provide more than the usual amount of recreation for the quartermaster's men. Cargre, get me Captain Laukon on the phone, will you? Wonder if we can store most of our stuff in the open? Save time and work—Cargre, when you've got Laukon, get me Meteorology, will you please? Get this operation organized as fast as possible. Any chance of getting additional supplies from the natives ought to be checked. Probably have some cockeyed standard of exchange." He took the phone from Cargre's hand. "Hello—Laukon? Listen, get your men organized to discharge supplies from the transports as soon as you get a go-ahead. And—hold on a minute, will you? —Cargre, get me the Bursar, please—Laukon? Yes, I was saying, start drafting plans for a receiving base on that central plain on Continent Four. Establish a liaison with Disbursements and set up a purchasing team. Get your research section to work on finding out what supplies the natives can furnish. O.K.—call in and tell Cargre when you're set up. Hello, Drall? What's the dope on the weather?"

Cargre touched the admiral's arm. "Excuse me, sir—the landing party's come back. They've got a native with them."

"Good. Good. I want to see the party's report, first. Have the native made comfortable. I'll talk to him later."

Cargre pulled the report out of the admiral's message box and handed it to him. While the admiral sat

down to pore over it, he smoothly took over the job of directing operations.

The tenuous exhaust wakes of tenders and barges began to link the ships of the hovering fleet. Twinkling in the sun, the vehicles of Fleet's Messengers crisscrossed the sky. The complex, yet smoothly-working machinery of Fleet Operations had begun its work.

Below the fleet, Terra revolved slowly, drifting around its sun—Sol, wasn't it?

Admiral Tarlaten closed the report and sat back thoughtfully. Despite its drabness, the planet—here he had to leaf back until he found the word "Terra"—the planet, Terra, was an ideal site for a base. So ideal, as a matter of fact, that only sheer neglect could have kept the Tratens from foreseeing the possibility and defending it.

Hm-m-m. But, no—the Tratens set no traps. What they held as their own they defended from the outset, throwing up an almost impenetrable defense and extracting a terrible price for every cubic inch of territory. They had absolutely no concepts of offensive strategy—not, to do them justice, did they need them. It followed that this system was outside the Traten "sphere"—though the very fact that no holding in space can be a sphere made this system so valuable a base, located as it was, deep within a wedge of unclaimed stars that pointed like a spearhead at the Traten Empire's abdomen.

The planet itself was populated by humanoids. This had long ago ceased to be considered unusual in the universe. But it meant that the fleet's men were unlikely to suffer the ill effects of a misfit ecology. It did mean lots of work on immunization shots, but, generally speaking, what plagues one humanoid race also plagues the others, so there was little likelihood of serious trouble with deficient antibodies.

The people were a motley lot, yet drab in the monotony of perfect variegation. No two of them were alike, either in their tastes or inclinations. They had a simple barter-system economy embracing everything from turnips to musical compositions. Every one of them was a dabbler. You could depend on it that any native, picked at random, could sing you a song, build you a chair, or weed your garden. They lived in simple, unexciting homes that might be clustered together in a village or separated from each other by the distance of a day's hike.

They were good handcrafters. Quartermaster Corps might be able to do something with that—trade them simple machine-tools for finished valve parts—something like that.

Admiral Tarlaten picked up his phone. "Linguistics, please," he said into it. "Hello, Linguistics? What have you got on the native's language?"

"Nothing unusual, sir. It's derived from the same root that all humanoid languages are. It has drifted

away by a considerable amount, of course, but we've already got a keyed Translator set up, and it won't take more than a day or two—possibly three—before he's talking Freasan like a native. He's a bright enough chap. Seems quite interested in our work. Fascinated by the Translator."

The admiral's mouth twitched. Had anyone tried glass beads or mirrors on the fellow yet? The degree of fascination—and comprehension—would certainly not change by much.

"All right, then—ship him up here." He looked at Cargre. "Any trouble?"

Cargre shook his head. "No, sir. All the transports are down and unloading. Meteorology tells me the planet has a highly regular and predictable climate. It won't storm for three months, so I authorized Quartermaster to unload in the open and build shelters at leisure. As a matter of fact"— Cargre threw a glance at a situation board—"there goes the green light on the transports now, sir. We're unloaded."

"Any trouble with the natives?"

Cargre's fingertip traced out the complicated network of one organizational chart. That led him into another, and that to a third. "Uh . . . oh, yes— No, sir, no trouble. As a matter of fact, I see that Quartermaster's hired a gang of them to help stack supplies."

"Well, good. Good, Cargre. Thank you."

Cargre turned back to his phones and ordered the transports into con-

voy for their return to Haldeja. The faster they got there, the faster they'd get back with more. Two or three ten-day trips and they'd have this base fully equipped. Once that was done, the admiral could launch the first stages of the offensive.

The annunciator on the cabin door chimed softly. Cargre looked up from his charts, caught the admiral's nod, and opened the door.

The native stood just outside, waiting. A Fleet courier, holding the Translator, stood beside him. Cargre shrugged and got back to his work.

The native looked like an ordinary humanoid being, with absolutely no distinguishing features. His hair was cropped close to his scalp, and his face was weatherbeaten into a permanent brown mask. Hair, eyebrows, and eyelashes were all bleached out to the shade of straw. His undistinguished pale-blue eyes glowed like cold steel. He could easily have passed unnoticed in the average Freesan crowd.

Cargre was far too busy to pay him any further attention. The native seemed to understand that. He turned toward the admiral, his eyes roving inquisitively over every detail of Tarlaten's features and uniform.

The courier set the Translator down on the admiral's desk, plugged it in, saluted and left to wait outside the door.

The admiral looked up at the native. "Sit down, please," he said, indicating the chair beside his desk.

As he sat down, the native shook the admiral's hand. "How do you do, admiral," he said. "My name's John Smith. Pleased to meet you."

"Pleased to meet you, Mr. Smith," the admiral replied politely. Actually, he had absolutely no feelings in the matter. As long as the landing party had brought the man back, well and good. But there was no real reason why he should waste his time. The native's mental horizons could not possibly coincide with his own. His conceptions of the universe could not help but be narrow and provincial. There was very little likelihood of their finding a common ground broad enough to be of any help.

The admiral sighed inwardly. Ah, well— What had he told Cargre? "We'll be slopping in deeper backwaters than this"—something like that. Looking at this native—this ... Smith—the admiral wondered if he hadn't been wrong.

Smith had been peering curiously at Cargre's situation boards while the admiral had been musing. The admiral caught his eye and smiled. "Complicated business, wouldn't you say?"

Smith nodded slowly, obviously awe-struck at the complexity of blinking lights and Cargre's continual barrage of orders into one phone or another.

"I don't suppose you people have ever seen a spacefleet before?"

Smith shook his head. "Not that I can remember."

"Well, we've been here before, but

it must have been quite some time ago. You're listed in our catalogues. It seems to me there was an indication that you possessed interplanetary travel at the time."

Smith shrugged. "It's possible, I guess." He was plainly fascinated by the cabin, his eyes rarely remaining directed at the admiral. His glance roved around the furniture and appointments, stopping to stare wide-eyed at the screens and the panels of instruments and indicators.

"I suppose you're wondering why we're here?"

"I was told you were fighting a war with some other race."

The admiral nodded. "That's right. The Tratens. They're a non-human race, and they've been giving us trouble for centuries."

Smith shook his head. The admiral could not decide whether he was expressing sympathy or bewilderment. One was as unimportant as the other. The man, like his race, was completely incapable of being important to any scheme of things but his restricted own.

"Well," the admiral said, completely bored and searching for a conversational topic, "what do your people think of our establishing a base on your planet?"

Smith spread his hands. "We don't mind."

And that seemed to be that. The admiral sighed inwardly once more. Why in the name of all space had he bothered to let himself in for this?

Smith had reverted to his first

love—the Translator. He had abandoned his ocular examination of the cabin and was twisting his head at uncomfortable angles, his eyes prowling around the Translator's case. He noted the microphones that picked up the conversation between them, the speakers from which the Freasan-to-Terran and Terran-to-Freasan translations came. He ran his fingers over the metal of the case. "Good workmanship," he muttered. He fiddled with the grommet around the line-cord entry. "Mighty nice plier work."

The admiral, with a vision of a towering drop-forged turning out Translator cases by the thousands, could barely restrain his impatience.

"Well, Well, Mr. Smith, I want to thank you for giving me your time. I'll see to it that you're given passage back to your village."

Smith stood up and extended his hand again. "Oh, that's all right, admiral. It's been a pleasure. And thanks."

Cargre let him out, and made sure he was safely in the hands of his courier. Then he exchanged a sour glance with the admiral.

The admiral got to his feet and stood in front of the screens, looking down at the planet trudging along below him.

Why had he come to this particular planet—granting that he had to put a base in this system? There was absolutely nothing special about this world. Its features were dull, its natives uninteresting. The men would

grumble and do their work shiftlessly.

The thought occurred to him that he might have made a mistake in favoring this planet. It might be best to set the base some place where the men would have an environment that kept them busy.

"No wonder the Tratens never bothered with this planet," he said aloud. "They'd have died with boredom before the first battery was in place." He shook his head. "I think we ought to move out before we do the same. What about those transports, Cargre?"

Cargre looked at a board. "They've already left."

The admiral grimaced. "Well, let's get them back as fast as possible. What's the name of the next planet in?"

"Venus, sir."

The admiral nodded. "That's right, Venus. Comes easier than the name of this place, doesn't it?"

"It does seem to, sir."

"Yes. Get me Laukon, will you please?"

The admiral was already balancing factors in his mind, calculating elapsed time for the transports to turn back, land, load, get to Venus and unload. Then there were the additional factors of underground storage depots to be blasted out, oxygen extractors to be set up, dormitories built—"Hello, Laukon? Look, get set to load the transports. Hold on a second—Cargre, how long before the transports get back? Laukon, you'll have ships in two hours.

That's right. Call in and tell Cargre when you're set. Cargre, get me Meteorology, will you? Wonder what the effect of wind-driven formaldehyde will be? Cargre, before you give me Drall, get me Artificers, will you? We'll need something special in the way of suits—"

Sunlight shimmered down the flanks of the ships as the Fleet moved spaceward. Below it, the abandoned planet revolved slowly around her sun, left to her own devices.

The name *is* Terra, isn't it?

Yes, Terra. A hard name to remember.

Once you got him away from the stultifying atmosphere of his home planet, Smith was an interesting person to talk to. Quite often, after the day's punishing work of supervising the establishment of the base, the admiral found it relaxing to invite Smith up to his cabin and spend an hour or so in conversation. Smith had brought along one of his native musical instruments, and he sometimes sang for the admiral.

As a matter of fact, it was the first time Smith sang that they achieved their first really intelligent conversation.

Smith had been sitting in his chair, idly strumming the instrument. Probably because of the perpetual sound of Venusian winds rumbling by aboveground, he had begun to hum in a low voice, and, as the song tightened its grip on his consciousness, had broken into words. His voice was not good by Freasan stand-

ards. Nevertheless, the native had a gift of pitch and delivery.

*"Ob, blow ye winds a-mournin'—
Blow all ye winds—cry ob!
Ab, cry, ye winds a-mournin'—
Ob, ob, ob! . . ."*

He sang in Terran. Even so, the admiral, who had looked up sharply, asked: "Is that a native song?"

Smith nodded absently, his head bent over the instrument.

"Odd," the admiral mused. "I know a song very much like it."

Smith shrugged, his fingers stroking muted sounds out of the tight cords.

"And . . . and that instrument—what's your word for it?"

"Guitar."

"Yes. Now, it looks very much like a Freasan instrument called the *iter*. Smith—have you ever wondered why you and I look as though we were descended from the same stock?"

Smith twitched a shoulder.

The admiral found himself deeply taken by the idea. "Could it be because we are? Look—there are so many similarities. Our languages are based on the same root tongue. You shook my hand when we first met. That is no unfamiliar custom to a Freasan. So many things—

"Consider, Smith. It has been thousands of years since our race first developed space travel. We have had it as long as our history goes back. The history of our race—of any race—is a fragmentary thing. There

are disasters, dark ages—times which might be centuries long when men are not concerned with anything more than sheer survival. Who is to say that we did not, some time unimaginably long ago, leave a colony on . . . on . . . excuse me, Smith—" "Terra."

"Yes. On your planet. Who is to say that when communication was interrupted, perhaps by the Tratens, perhaps by something else, your people did not forget their heritage and live on as though they were an entirely separate race?"

Smith nodded slowly. "Sounds logical."

"Yes, it does. Very much so," the admiral mused. "Play something else for me, will you please?"

"Sure." And Smith had played while the admiral pondered, the sound of an unfamiliar—and yet hauntingly reminiscent—phrase occasionally bringing a slow, speculative look into the admiral's eyes.

Cargre, Smith, and the admiral, stood bulkily encased on a ledge, watching the transports struggle down on their third trip from Halleja. The grimace on Cargre's face was reflected in his voice over the radio as they watched the ships whirl and dip like balloons on a gusty March day.

"We'll lose one, at least," he said.

The admiral kept his eyes locked on the descending green-and-gold of the transports. "I'm afraid so," he sighed. "Well, it couldn't be helped."

Smith watched silently, his face a

brown-and-straw blur behind the diffusing curve of his faceplate.

In the howling hell that served Venus for a sky, two ships touched.

"No!" the admiral moaned in agony as they burst apart. Fragments whirled down out of the sky, shearing the storm. The admiral paid no attention to them. He was half-crouched, counting the very few escape-pods kaleidoscoping in the sky. Cargre was cursing steadily, blind with rage. A jag-toothed hull section screamed silently down at them, followed by a shower of broken metal.

An unexpected gust of wind caught it, throwing it up like a shield from which the dozen small pieces suddenly rebounded like shrapnel. Then it fell vertically, scarred by the impacts, and dropped to the ground well short of Cargre, the admiral, and Smith.

That night, the admiral sat brooding in his quarters. He talked more to himself than he did to Smith.

"Five ships, so far," he muttered. "Five ships before we're fairly started." He clutched a thigh with his angry hand. Then he sighed.

"Well, we knew it would cost us." He turned to Smith for a sounding board. "This is only one fleet. There are six others, equally big, working their way around the Traten periphery, setting up bases from which to supply the final attack. And we don't expect more than five or six per cent to come back. What d'you think of that?" He found the shock

he was looking for in the native's face. "What d'you think of sitting here and talking to a man who won't be alive next year? And yet we've got to do it.

"Listen—we've been at war with the Tratens for almost a thousand years. War! I don't think a disinterested observer would call it that—it's been going on too long.

"They hold their stars, and won't let us come into them. There are stars beyond in which they have no interest. They don't attack us. But they will not let us go through. We've sent fleet after fleet against them. We can't let them block us. We'd stifle. You can't have two empires in space.

"They're like a steel wall in the sky. One fleet after another's smashed itself against them.

"We've had enough. It's taken us a long time to reach this almost suicidal point, but we *have* reached it.

"It'll bankrupt our economy, and decimate our race. It'll throw us back a hundred years. But we'll smash them, this time. And, after those hundred lost years have passed, we'll be back. We'll have a clear sky to travel in, and the Tratens will be out of our way at last.

"But what do you think of that? Has anyone on your world, in your society, ever imagined war on that sort of scale? What do you think of my people—of your people, perhaps, as well—who have been able to reach that kind of decision?"

Smith looked at him for a long

time, his eyes sad. His fingers plucked at the strings of his guitar.

*"Blow all ye winds—cry oh!
Ab, cry, ye winds a-mournin'—
Ob, ob, ob! . . ."*

The days went by in a stink of formaldehyde. As the base grew nearer to its intended function, the admiral's eyes seemed to inch back under his brows, taking on a darker coloring. His nightly sessions with Smith began to lengthen, as though he had no hope of sleep, however the time was spent. One by one, the days whipped away and were gone over the ugly horizon.

When Smith stepped into his quarters on the last night, the admiral smiled at him wanly.

"Tomorrow's the day," he said.

Smith nodded, sitting down. "How do you feel?"

The admiral twisted a corner of his mouth. "Glad it's finally gotten past the spadework stage.

"You know," he mused, "I find myself wondering what I'm doing here." He shrugged helplessly. "I've had opportunities to retire. I used to think, sometimes, that if I ever came to a quiet, peaceful world—some place with mountains to hunt in and rivers to fish—but, let's face it. There aren't any places like that. And the Tratens have got to be broken, once and for all."

He broke himself out of the mood and laughed. "Tomorrow I'll be standing on my bridge with blood

in my eye, happy as a colt that I'm finally off this God-forsaken place and moving." He turned to Smith. "You know, I'll admit I had you tagged as a pretty dull specimen, back on . . . your planet. But I'm glad you came along. I'll tell you the truth—I'll be sorry to see you go. I've arranged for a patrol boat to take you back. You wouldn't want to be with us when we get where we're going."

"You're right. I wouldn't."

"I'll miss you. Which is more than I can say for this solar system. Let's face it, and no insults intended—you people may or may not have as much claim to being Freasan as I do, but there's no real intellectual tie between us. I come from a complex culture that's been evolving for thousands of years. We don't even visit most solar systems any more. We know you're there. We've got you catalogued and surveyed—most of you, anyway. But there just isn't anything about you to . . . to *interest* us. D'you see what I mean? Your motives—your actions—they're important and meaningful to you. To us, no. We've had them, and done them. We're beyond them."

Smith nodded slowly. "Sounds logical."

"I'm glad you see it." The admiral was walking back and forth animatedly. "Look—we've got mechanisms and sciences you don't know anything about. If we were competing with you for something, you wouldn't stand a chance. So what's the good of competing? We just

leave you alone. I wish I could say that the average Freasan feels he's following a carefully thought-out 'hands off and let 'em evolve for themselves' policy. Maybe some of our theoreticians do, and, certainly, that's the effect. But the blunt truth is that the average Freasan would no more become involved with you than he would with a bunch of kids solving kindergarten problems."

Smith pulled his fingers across the strings of his guitar.

The admiral put up his hand as he walked. "No. Quit trying to spare me embarrassment. I'm keyed-up as a bridegroom the night before the wedding, and I've got to run down." He swung around and faced Smith.

"Look—as one Freasan to another, and to hell with where the chips fall—if this system wasn't located in a little enclave of space that's managed to somehow stick itself into the middle of the Tretan empire, we wouldn't have revisited you in a million years. Maybe more. But from here we can cut 'em in two. So here we are, in spite of the fact that we would ordinarily have just as soon set up housekeeping in the middle of a desert.

"Now—how do you feel about Freasans? Still feel sorry for me?"

The admiral stopped to look at him again. "You're one prime example of a cool customer," he said with a certain tinge of admiration. "I still haven't figured out how we

forgot to drop you off when we left . . . uh . . . did you *deliberately* pick a name nobody could remember for your planet?"

Smith chuckled. "Terra."

"Terra. All right. It could just as well be any one of a hundred other planets in a hundred similar systems—none of which I can remember."

Smith nodded quietly to himself. "What'd you say?" the admiral asked.

"Me? Nothing."

"Could have sworn I heard you say 'I know.' Well, anyway—you get my point. We're evolving. We're moving up. We're leaving things behind, sure, but we're gaining other things—better things—to replace them. And, some day, we're going to find out where the human race is going. This thing with the Tratens is going to set us back. But not permanently. We'll come up again."

"This time," Smith said with complete conviction, "I *will* say I know."

"Right. One of these days, the galaxy is going to be Freasan from end to end."

"Except for the solar systems that bore you."

"All right, except for the solar systems that bore us. But what's a solar system or two when you can walk across the suns?"

Something—nothing he could see as he looked down to search for it—made him stumble.

Smith grinned dryly. "Careful," he said.

THE END



Director Byron Haskin (left) and Producer George Pal (right) confer with authors Chesley Bonestell and Willy Ley on the filming of their book, "Conquest of Space."

THE CONQUEST OF SPACE

Paramount Pictures is releasing, this month, their new George Pal production, "The Conquest of Space." The film is based on the book Willy Ley and Chesley Bonestell did; in essence, this is the first movie of straight science-fact-speculation that has been done. Sticking as close to the facts-as-they-are-believed-to-be as possible, with a minimum of story-plot hokum, the picture is a genuine effort to present in full technicolor form what the present engineering thoughts about interplanetary travel are.

Willy Ley and Chesley Bonestell were the technical advisors on the picture; Bonestell, of course, did much of the art work essential to screening a dream-come-true.

The basic conception is that the United States Air Force takes on the job of building first The Wheel, the space-station orbiting Earth 1,080 miles out, and then the ship capable of the Mars trip.

In Fig. 1, the whole group of ships used is seen; at the far left, the interplanetary satellite-to-Mars ship; center, the Earth-Satellite ferry ship, and, right, The Wheel—the satellite station.

In Fig. 2, the spacesuited crew of the Earth-to-Satellite ferry is about to be picked up by a taxi-rocket for transportation to The Wheel.

Fig. 3 shows the landing on Mars. Nasty looking territory for a high-

speed landing; it suggests that the tail-first landing technique, backing down on the jets, would be definitely advantageous for a first landing on a planet!

The picture follows closely the lines of engineering speculation on the subject at the present time. The bulbous auxiliary tanks of the Satellite-to-Mars ship shown in Fig. 1 have been left in orbit around Mars before the winged ship heads toward Mars itself.

Pictures of the interior of the rocket ship show the fuel-control pipe systems, and the valves are clearly labeled; it's fueled with hydrazine and nitric acid.

Our cover shows the take-off from

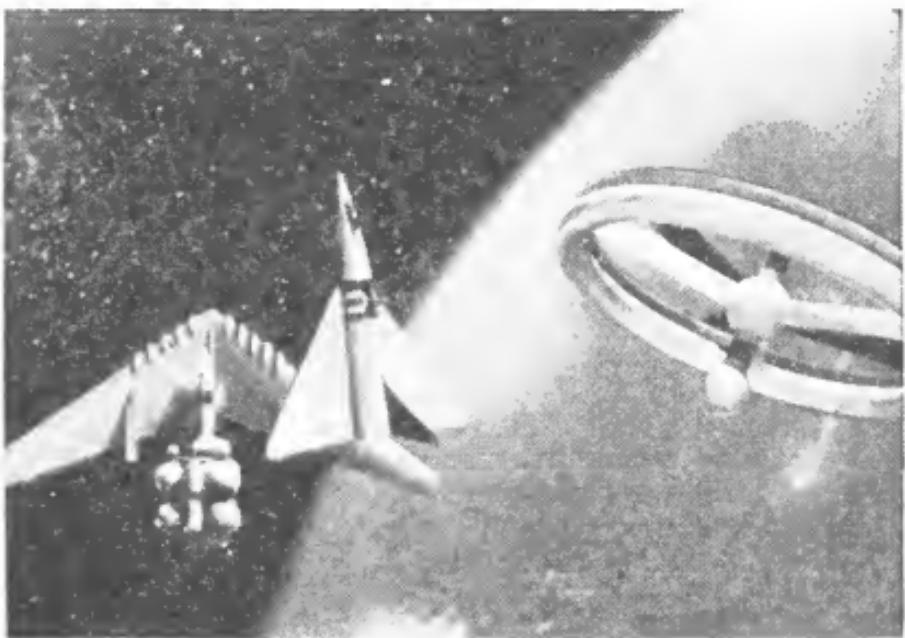


Fig. 1. The principal props in Paramount's "Conquest of Space," new outer space film concerning a group of Army volunteers who attempt a flight to Mars from "The Wheel," man-made space station some 1,080 miles above Earth.

Mars; the wings are abandoned, and a straight rocket ascent is made.

Essentially, "Conquest of Space" is *not* a science-fiction film; it's science-speculation, but holds as close to the line of exact science planning as is possible. There are no Martians; equally, despite the natural tendency in Moviewood, the trip to Mars is not made in the company of half a dozen pretty girls. Our best present guesstimates of what the situation on Mars and on the expedition will be vetoed both ideas.

It's a good try; I hope it's the financial success it should be, in order that more such carefully worked out presentations of science-futures can be attempted.

THE END



Fig. 2. In this scene from the George Pal production, a "space taxi" flies the men from "The Wheel" to the rocket ship which takes them to Mars.

Fig. 3. LANDING ON MARS: The rocket ship is about to land on the planet Mars in this scene from Paramount's new "Conquest of Space."





HOW TO LEARN MARTIAN

Once upon a time, people thought that a vocabulary and the grammar rules were the whole story on learning a language. But modern linguistics finds it's both more complicated, and also somewhat simpler than that . . .

BY CHARLES F. HOCKETT

Illustrated by Freas

An agent of the Galactic Federation, sent to Earth to case the joint secretly for either friendly or inimical purposes, could do a good deal worse than to make a survey of the scientific terms that appear, quite casually, in contemporary science fic-

tion. True enough, there would be some discrepancy between the state of scientific development suggested by such a survey and the actual state of development in laboratory and industry—atomic energy was spoken of quite freely in our type of fiction for

decades before technology caught up with imagination, and, in reverse, real recent developments in some fields are only now beginning to find their way into science fiction. If the agent's sole aim were to measure our technological potential, science fiction would be of no great help. But if he also wanted to determine the *degree of general technological readiness* of the whole population—at least in so-called "civilized" parts of the world—then the suggested survey would be of considerable value.

One score on which, as a measure of real technological development, our agent's study of science fiction might badly mislead him, is in the matter of communication, particularly the basic form of human communication, *language*. An occasional term of modern linguistics turns up from time to time in science fiction: "phoneme," in particular, is a word to conjure with just as much as is "transistor" or "cybernetics." The effect sought by the use of such a word is spoiled if the story-writer pauses to explain: the use must be casual, implying that the reader knows all about such things. And, because many of our magazines regularly run factual articles or departments, and we addicts regularly read them, this assumption of the story-writer is very often true.

If we can pride ourselves on the number of modern developments which were anticipated by the lively imaginations of an earlier generation of authors, I think perhaps we

should temper this pride with a bit of shame that we have been such Johnny-come-latelies about phonemes, morphemes, intonations, constructions, immediate constituents, the impact of language on culture, and the like. Do you know when the fundamental principle of phonemics was first expounded?

It was explained rather clearly—though of course without the word "phoneme"—by a twelfth-century Icelander who was annoyed by the inaccuracy with which his compatriots put down written marks to represent Icelandic speech. We can probably forgive ourselves for not having known about this particular early episode, especially since modern linguists had forgotten all about it and had to rediscover the principle for themselves. But even in modern times the phonemic principle was stated, in one way or another, as early as about 1910: the earliest mention I have been able to track down in science fiction postdates World War II.

Maybe we should catch up. If our authors would like to follow their usual custom of being ahead of the times instead of lagging behind, they must at least know what the times have to offer. If we readers insist that they should do this, they will.

We are going along on the first voyage to Mars, and very conveniently we shall find intelligent oxygen-breathing beings with respiratory and digestive tracts shaped very much like our own. (Later on we can point

out why this last assumption is so convenient.) Our ship lands; we make the first hesitant contact with the Martians; and before long our xenologist, Ferdinand Edward Leonard, B.A., M.A., Ph.D., M.D., X.D.—who is about as chock full of modern anthropological, linguistic, communicative, engineering, psychiatric, and biological training as one skin can be stuffed with—sits down with a Martian to try to find out something about the latter's language.* (Hidden assumption: Martians can sit down.) For short, we shall call these two "Ferdie" and "Marty"—the latter because even Ferdie won't be able to learn, or to pronounce, Marty's real name for quite a while. (Query: Do Martians have personal names?)

Ferdie points to the Martian's foot and says, of course in English, "What do you call that in your language?" Marty certainly does not understand, but at this moment he makes a bit of vocal sound, something like *GAH-djik*. Ferdie puts this down in his little notebook, and writes the English word "foot" by it. What Ferdie puts down to represent the Martian "word"—if it really is a word, and not just Marty clearing his throat in the typical Martian manner—doesn't look quite like what we have written

above, because Ferdie has a special set of written marks which he can use more efficiently and accurately for the purpose (a "phonetic alphabet"); but we needn't bother with this, because it is merely a convenience, not an essential. Now Ferdie is not being a fool and jumping to conclusions when he makes his notebook entry. He knows perfectly well that the sound Marty has made may not only not mean "foot," but may not even be a word at all. Ferdie makes his entry only as a memory aid; it will be easy enough to scratch it out when and if necessary.

Ferdie also says *GAHdjik* himself—or tries to—and observes Marty's reaction. Just for fun, we shall pretend that Marty does not react, so that this time Ferdie has gained nothing.

Next Ferdie points to something else, gets another reaction from Marty which may be a "word," writes it down, and tries to imitate it. Then he points to a third thing. After a while, having elicited a number of such bits of what may be speech, Ferdie returns to Marty's foot. This time what Marty says doesn't sound like *GAHdjik*, but more like *KAHchuk*.

Right at this point, Ferdie comes face to face with the most ticklish and crucial problem which can be encountered by a xenologist or by an Earth linguist. (We except, of course, the task of working with the dragonlike inhabitants of Antares II, whose languages make use not of sound but of heat-waves.) Has

*Roger Williams, of Rhode Island and Providence Plantations fame, wrote a little book called *Key Into the Language of America*, a grammar of a language spoken by a few hundred Indians in his vicinity, which was but one of several hundred distinct languages spoken in aboriginal North America. Some of our exploring science-fiction heroes fall into this same error. If there are millions of intelligent beings on Mars, there may be thousands of Martian languages.

friend Marty given two different "words" for two different meanings? Has he given two distinct "words" for a single meaning? Or has he simply said the same "word" twice, with slight differences in pronunciation which are clear to Ferdie but which would be entirely overlooked by Marty's fellows?

Since this problem lies at the very heart of phonemics, we had better return to Earth momentarily and look at some more homely examples of what is involved.

Suppose that your name is Paul Revere and that you want to arrange for me, over in Boston, to send you some sort of a signal across the Charles River so that you can know whether the British are coming by land or by sea. This is all you want to know—it is already clear that they are going to be coming one way or the other, but you need to know which way. What we have to do is to establish a code containing just two signals. One of the signals will mean "they're coming by land," and the other will mean "they're coming by sea." The physical circumstances have something to do with what kinds of signals we can choose. They must both be something that you, over on the Cambridge side of the river, can easily detect, so that a shout or halloo wouldn't do very well. Since it will be night, some sort of arrangement of lights—up in a high place—would be a good idea.

Another consideration is that there must be no possible danger of my

sending one signal and you receiving what is apparently the other. That is, we want to keep the two signals physically distinct, so that there will be no danger of misunderstanding. Shall we use a red lantern for "by sea" and a green one for "by land"? No—green might not show up too well, and what's more, we haven't got a green lantern. But I know there are two lanterns over in the basement of the Old North Church: suppose I put just one of them up in the tower for one of the signals, but both of them, at opposite sides, for the other. "One, if by land, and two, if by sea?" Agreed! Good luck on your ride! Hope a fog doesn't come up.

People can make signals out of anything they can *control* and can *observe*, and they can make the signals mean anything they wish. We constantly establish little short-term signaling systems, use them, and then discard them. A wave of the hand, a drop of a handkerchief, a wink of the eye, the raising of a window blind, the toot of an auto horn—such events are assigned special meaning over and over again. Some signaling systems are a little more elaborate and a bit more enduring—for example, the pattern of lights, stable or winking, shown at night by a plane for takeoff, for landing, or during flight. The really elaborate systems are hardly "invented," but merely passed down from generation to generation, with gradual changes; among these, of course, belongs language itself. Now, however varied these different systems may be,

they all conform to certain fundamental principles. One of these—the one in which we are concerned here—is that the users of the signals must be able to tell them apart. This sounds simple and obvious enough, but it has some pretty complicated results.

Paul Revere and his side-kick had no trouble on this score, because they needed only two signals—all Paul had to have was one item of information of the either-this-or-that sort. But suppose you had to work out a signaling-system which will include hundreds or thousands of distinct signals. Keeping them physically apart and easily distinguished is in this case much more difficult.

One technique that anyone confronted with such a design-problem is bound to hit on is to set up some fairly small repertory of basic elements, each of them quite different physically from any of the others, and then arrange for the actual signals to consist of some sort of arrangement or combination of the fundamental elements. Suppose Paul and his henchman had needed a couple of hundred different signals. They could have arranged, for example, for a row of five lights to be put up in the old North Church tower, each light either red or green or amber: this yields two hundred and forty-three distinct combinations, yet calls for only fifteen lanterns to be available—one of each color for each of the five positions.

It is pretty obvious that this set of

two hundred and forty-three signals would be much easier for Paul to read from across the river than, say, the same number of signals consisting each of a lantern of a different shade. The human eye, true enough, can distinguish several thousand shades of color, but finer distinctions are not easy to detect, and for rapid and efficient use ought not to be involved. Even as it is, if Paul's assistant is only able to find four really red lamps and has to fill in with one which is rather orange, there will be the possibility that the orange lamp, intended as functionally "red," will be interpreted by Paul as "amber." This danger can be avoided if Paul knows in advance that the "red" lamps will in actual transmission vary somewhat in precise shade, without making any significant difference in the signal.

This sort of thing has actually happened in every known case of a really complicated signaling system, including language. When a linguist goes to work on a language he has never heard before, he can count on certain things along this line. The colored lanterns in this case are different motions of lips, tongue, throat, and lungs, which produce kinds of sound which can be heard, and told apart, by human ears.

The investigator knows that the people who speak the language will make *distinctive* use only of certain differences of articulatory motion—that is, maybe they will use relatively red, relatively green, and relatively amber lanterns, but not also orange

or blue. He knows that if an articulatory motion of an ambiguous sort occurs, it will count as a "mistake" and will be allowed for by the speakers of the language—since orange is not functional, the actual appearance of an orange lantern must be a mistake for red or for amber. But he does not know in advance just what differences of articulatory motion will be thus used.

After all, a lantern-code could make use of any number of different ranges of spectral colors, providing that no two of the significantly different shades were so close together as to give rise to serious danger of confusion. In just the same way, there are any number of ways in which a selection can be made, from the "spectrum" of all possible speech-sound, of "shades" to be used distinctively. The only way to find out what selection is actually made by the speakers of a given language is—but let's watch Ferdie and Marty again and see if we can find out.

We left Ferdie confronting the problem of *GAHdjik* and *KAHchbuk*. Assuming that each of these is really speech, not just Martian throat-clearing, then there are three possibilities:

(1) They are two different words with two different meanings. If we were in the position of Marty, the first time a xenologist pointed to our ear we might say *ear*, and at a subsequent time we might think he was asking what the organ is used for, and so say *hear*. *Ear* and *hear* are pretty similar: a Frenchman or Ital-

ian who knew no English might easily wonder whether they were two words or just one.

(2) They are two different words, but for essentially one and the same meaning. When we pronounce *room* with the vowel sound of *cooed* we are using one word; when we pronounce it with the vowel sound of *could* we are really using a different word. But it would be hard to find any difference in the meaning of the two.

(3) Marty has simply said the same word twice: the apparent variation in pronunciation would not be noticed by his fellow Martians. A speaker of Hindustani, hearing us say *pie* or *tie* or *cow* several times, might be convinced that we were pronouncing the initial *p*- (or *t*- or *k*-) now in one way, now in another, since Hindustani breaks up the "spectrum" of possible speech sound a little more finely in this particular region.

There are several things Ferdie can do to try to solve this problem. First, he points to Marty's foot again and says *KAHchbuk*, to observe the response; a little while later, he makes the same gesture and says *GAHdjik*. For good measure, he also tries *GAHdjnk* and *KAHchbik*, and even *gabDJIK* and *cabCHIK*, making the second syllable louder than the first. The hope is that he can manage to get something out of Marty's reactions which will indicate acceptance or rejection of the various pronunciations. If Marty accepts all the pronunciations except the last



two, then Ferdie has fairly good indication that the answer is the second or third of the possibilities, rather than the first. Of course he can't yet be absolutely certain; perhaps Martians are too polite to criticize, or perhaps we simply haven't yet learned to read their gestures of acceptance and rejection.

Another procedure is available. Ferdie looks through his notebook and notices an entry *GOOpit*, apparently meaning "small tuft of green hair sprouting from the back of a Martian's neck," and an entry *KOO-sabng*, which seems to refer to a low-growing yellowish shrub that is plentiful in the vicinity. This is what Ferdie does and how Marty reacts:

Ferdie (pointing to the tuft of hair): "*GOOpit*."

Marty (closing his middle eye—apparently the gesture of assent). "*FUM*."

Ferdie (pointing to the bush): "*KOOsabng*."

Marty: "*FUM*."

Ferdie (the tuft of hair): "*KOO-pit*."

Marty: "*FUM. NAHboo GOOpit*."

Ferdie (the bush): "*GOOsabng*."

Marty: "*FUM. NAHboo KOO-sabng*."

Ferdie (pointing to the spaceship in which we arrived): "*GOOpit*."

Marty (popping all three eyes out on their stalks): "*HLA - HLA - HLA - HLA! EEkup SAHCH bab-KEENDut!*"

This last response, whatever it actually means, is certainly different enough from the others to be indicative. Ferdie concludes that he can

probably work on the theory that the last response was rejection, the others all acceptance. But what does this tell him? It tells him the following:

(1) *GOOpit* (or *KOOpit*) does not mean "spaceship."

(2) The pronunciations *GOOpit* and *KOOpit* may sound different to us English-speaking Earthlings, but to Marty they are all the same.

(3) The pronunciations *KOO-sabng* and *GOOsabng* are also all the same for Marty.

(4) The pronunciations *GAHdjk*, *GAHdjnk*, *KAHchik*, *KAHchuk* sound quite varied to us, with our English-speaking habits, but the differences are irrelevant for Marty's language.

Or, in short, for the last three points, the difference between an initial *k*-sound and an initial *g*-sound, which is distinctive for us, is not functional in Marty's language. Ferdie has reached one conclusion about the phonemic system of Marty's language: in the region of the spectrum where English distinguishes between two phonemes, *k* and *g*, Marty's language has only one.

It is entertaining to follow the hard step-by-step field-work of a xenologist or a linguist this far, but after this it quickly becomes boring, at least for everyone but the investigator himself—and, often enough, for him, too. Because what he has to do is simply more of the same—over and over and over again, eliciting, recording, checking, correcting, reaching an occasional tentative con-

clusion, finding out he was wrong and revising. It is a routine sort of task, before long, but unfortunately it is not one which can be assigned to any sort of machine. (At least, a machine that could perform the task would have to have all the logic and illogic, all the strengths and weaknesses, of human beings.)

Ferdie's aim can be stated rather easily. He wants to reach the point where he can supply an accurate description of all the *differences in pronunciation* which are *distinctive* in the linguistic signaling of Marty and his fellows. He wants to be able to state what shades of lanterns are used, in what sequences the different colors are allowed to occur, and just what range of spectral shades counts as an instance of each color. All of this constitutes the *phonemic system* of Marty's language.

Maybe you think it need not take Ferdie very long to achieve this aim. Well, if Earth languages are any guide, there is a good chance that our ship hasn't brought along enough food to supply Ferdie while he finishes the job; unless he can get along on Martian lizard-weed, the native staple, he is out of luck. In a day or so, a well-trained Earth linguist, working with a completely new language, can get the cultural wax out of his ears and begin to hear something that sounds like it might really be a language. Before that, everything is a mumbling buzz. In another ten or so days of hard work, the linguist can get perhaps ninety per cent of what counts in the sound-

making and sound-recognizing habits of the language, though his own hearing may not yet be too well trained for the new system. In another hundred days he can get perhaps ninety per cent of the remainder. Sometimes it is years before he gets it all.

However, this rather long program shouldn't discourage us, since Ferdie can be making effective practical use of the local Martian dialect long before the full cycle is up. Ninety per cent is actually pretty good, though so long as, in his own attempts at speaking Martian, Ferdie uses only ninety per cent, he will impress Marty as having a pretty un-Martian accent. Let us see what "ninety per cent" means and why it is effective.

The phonemic system of Marty's language—or of any other—is a set of distinctive *differences* between pronunciations. The units which we call "phonemes" are in themselves of no importance: it is the differences between them that count. A given phoneme, in terms of its use in communication, is nothing except something which is different from all the other phonemes in the system. In Morse code, a "dot" is a "dot" and a "dash" is a "dash" whether the former is a short voltage pulse and the latter a long one, or the former is a wave of a flag in one direction and the latter a wave in the other direction. This is why we will irritate Ferdie no end if we ask him, after his first day's work, "Well, do they have a phoneme *K*?" or "Well,

is *K* a phoneme in Martian?" If you want to compare languages with each other, the sort of question which must be asked—the sort that will be meaningful to Ferdie even if he can't yet answer it—is "Does Marty have a phonemic contrast between *K* and *G*?"

The difference between *K* and *G* is distinctive in English, so that we have two phonemes rather than just one in this general region of the spectrum, because a great many pairs of words are kept apart by the difference and by nothing else: *good* : *could*, *gap* : *cap*, *glue* : *clue*, *bag* : *back*, *bigger* : *bicker*, and so on. In Marty's language there are no pairs of words kept apart in just this way. On the other hand, the difference between *EE* and *AH* is distinctive in Marty's language—as in ours—because *KEEtah* means "eyestalk" while *KAHtab* means "setting of Deimos."

The sole function of phonemes, then, is to be different from each other, and, in being so, to keep words and utterances—whole signals—apart. But some differences between phonemes do a lot more of this work than do others. The difference between *K* and *G* in English carries, relatively speaking, a fairly large share of the total load, as you can easily see by looking for more pairs of words like those which we gave above—it is easy to list hundreds. The difference between the *sh*-sound of *she* or *bush* and the *zh*-sound in the middle of *pleasure* is also functional, but this distinction doesn't

carry very much of the total load. If you look hard, you may be able to find three or four pairs of words in which this difference is the only one—one example is *measure* and *mesher*—but there are very few.

Actually, a technique deriving from information theory makes it theoretically possible to express the "functional load" of different phonemic contrasts in a language in quantitative terms, to any desired degree of accuracy. But the amount of counting and computing which is involved is enormous, and would hardly be undertaken without a properly designed computing machine—and then it costs lots of money instead of lots of time, which for linguists is even worse. But we don't need such figures here; the general principle is, we hope, clear enough.

It is because of this that Ferdie can begin making effective use of Martian long before he has ferreted out and pinned down every last vestige of distinctive difference in articulation of which the language makes some use. It is obvious on the face of it that the differences which he discovers first are bound to be, by and large, the differences of greatest functional importance. Working just with these in his own attempts to speak Martian, he will sometimes be misunderstood—but we misunderstand each other from time to time even under the best of circumstances. If you want further empirical evidence, you need only think of the German or the Frenchman who makes you understand him with imperfect

English—or of you, yourself, managing to communicate in imperfect French or German.

If there *are* Martians, and they *are* intelligent and have a language, and if they *do* have upper respiratory and alimentary tracts shaped much like our own, and ears much like ours, and, finally, if they *do* make use of these organs in speech communication—given all these ifs, then the procedures of Ferdinand Edward Leonard will work, and he will be able to "break" the phonemic system of the language.

But suppose that the Martians fail on just one of the above ifs. Suppose that they have two tongues and no nose. How, then, is Ferdinand Edward Leonard to imitate and to learn to recognize their speech sounds?

Suppose something even more drastic. Suppose that the Martians communicate with a system just as complex as human language and with much the same essential structure, but that instead of modulating sound they modulate a carrier at frequencies above the reach of human ears—or radio waves, or a light beam, or odors, or electrical flows, or some kind of energy transmitted through the "sub-ether." What kind of equipment and training shall we give our xenologists to handle situations of this sort? There are still certain fundamental design-features which any such language-like communications system is bound to include, but the problem of observation and analysis is tremendously harder.



THE LONG WAY HOME

Second of Four Parts. They weren't exactly welcome on an Earth 5,000 years beyond their time—but they were hotly contended for. Nobody liked them, but everybody wanted them—particularly the one who wasn't there!

BY POUL ANDERSON

Illustrated by Freas

In the Twenty-first Century, a physical effect was discovered which seemed to transport matter instantaneously from place to place and thus to permit interstellar travel. Unfortunately, the positioning control was very poor; therefore the United States Department of Astronautics outfitted a spaceship, the Explorer, with the new "superdrive" and a small crew of scientists who were to get the bugs out of the system. Their method was to jump across light-years to test each change in the circuits, and in the course of a year they had completed the task and returned to Earth. The crew consisted of: Captain Edward Langley, pilot and engineer; electronician Robert Matsumoto; and physicist James Blaustein. A fourth man had died, but his place was taken by Saris Hronna of Holat.

Holat, a thousand light-years from Sol, had seemed a backward planet whose race—big otterlike creatures—were peaceful neolithic herders in spite of being carnivorous. But its world-wide civilization was highly developed along nonhuman lines, especially in the fields of psychology and philosophy. The Holatans were sensitive to neural currents, though not mind readers, and enjoyed a stabilizing emotional communion. They had been of considerable help in improving the superdrive, and Saris Hronna went along to Earth as their representative.

When the Explorer returned, Earth

was far off its expected position. Nevertheless Langley brought the ship in, noting that his world was strangely altered: the polar ice-caps were gone, the coastlines changed, cities he knew had disappeared and others arisen, the radio carried a wholly foreign language. Antigravity warships forced him down to a landing field in the New Mexico area, and the crew was arrested by uniformed men carrying unknown weapons. Saris nullified these and escaped into the agricultural countryside; the humans remained prisoners.

Under hypnosis they revealed what they knew and learned the present language. Awakening, Langley was interviewed by Chantbavar Tang ro Lurin, chief field operative of Solar military intelligence, who explained the facts to him. The superdrive was only light-speed, a projection and recreation of de Broglie waves rather than a jump through "hyperspace," and in crossing five thousand light-years the Explorer went five thousand years into the future. No better drive had been discovered, and only the nearer stars were normally visited: lost colonies were known to be scattered through the galaxy, but they lay beyond contact and must have developed a wide variety of civilizations.

For the past two thousand years, the Solar System had been unified under the Technate, a petrified society in which basic decisions were made by the Technon, a giant, hidden sociomathematical computer. Ad-

ministration was in the hands of the Ministers, a class of genetically selected aristocrats; the army, like the police and most servants, were slaves, specially bred and trained: the Commoners lived relatively unsupervised lives in the lower-city levels, working for hire or as small entrepreneurs, but powerless, uneducated, and impoverished.

Sol's deadly rivals were the Centaurians, descendants of early colonists on the habitable planets Thor and Freyja of the Alpha Centaurian System. They were mechanized semi-barbarians, divided into nobles, yeomen, and technicians, warlike and greedy for more land. They had fought an unsuccessful war with the natives of Thrym, a poisonous giant planet of Proxima, and later allied themselves with the wholly unhuman Thrymans. At present, sheer distance prevented war with *Sol*, but both sides were maneuvering for advantage and any upset in the balance of power could lead to space fleets bombarding the planets with ruinous effect.

Lord Brannoch dbu Crombar of Thor was not only the Centaurian ambassador to *Sol*, but the head of a spy ring. Through a Solar officer in his pay, he learned of the Explorer and at once realized the significance of Saris' hitherto unknown powers. He had four Thrymans in a tank with him—or one, since they could hook up telepathically into a single unit—whose ability to read human minds was a closely guarded secret of immense value. But he got the

idea for a campaign to catch Saris for himself: he would work through Langley, of whose personal effects he had obtained photographs. These included pictures of the spaceman's long-dead wife.

Chanthavar was also anxious to get Saris, and asked Langley's help; the spaceman, stunned and heartsick, stalled till he could learn more by claiming he had no idea where Saris would go. Chanthavar took the Explorer crew to a party, where they were a minor sensation and Langley got a further impression of Solar decadence and Centaurian ruthlessness. There he met Brannoch, as well as Goltam Valti, chief Solar factor of the Commercial Society. This was a nomad group, a civilization in its own right composed of many races, trading with all known planets and becoming ever more important as these used up their own resources. Both Brannoch and Valti hinted strongly that they would pay well to be told Saris' whereabouts: obviously both had agents in the Solar government.

Meanwhile the Holatan, pursued by Technate police, was trying to hide till he could evaluate the new situation for himself. He was afraid his own planet, though far off, might become the prey of some chance conquistador; to aid it, he planned to play the various human factions off against each other. He used his brain's power of electromagnetic induction, which enabled him to control any electronic apparatus, to help him capture a police aircraft, and in

this he went looking for a biding place.

PART 2

VI

Progress does get made: Langley's refresher cabinet removed all trace of hangover from him the next morning, and the service robot slid breakfast from a chute onto a table and removed it when he was through. But after that there was a day of nothing to do but sit around and brood. Trying to shake off his depression, Langley dialed for books—a slave superintendent had shown him how to operate the gadgets in the apartment. The machine clicked to itself, hunted through the city library microfiles under the topics selected, and made copy spools which the spacemen put into the scanners.

Blaustein tried to read a novel, then some poetry, then some straight articles, and gave it up; with his scant knowledge of their background, they were almost meaningless. He did report that all writing today seemed highly stylized, the intricate form, full of allusions to the classic literature of two millennia ago, more important than the rather trivial content. "Pope and Dryden," he muttered in disgust, "but they at least had something to say. What are you finding out, Bob?"

Matsumoto, who was trying to orient himself in modern science and technology, shrugged. "Nothing. It's all written for specialists, takes for

granted that the reader's got a thorough background. I'd have to go to college all over again to follow it—what the blue hell is a Zagan matrix? No popularization at all; guess nobody but the specialists care what makes things tick. All I get is an impression that nothing really new has been found out for a couple of thousand years."

"Petrified civilization," said Langley. "They've struck a balance, everybody in his place, everything running smooth enough—there's been nothing to kick them out of their rut. Maybe the Centaurians ought to take over, I dunno."

He returned to his own spools, history, trying to catch up on all that had happened. It was surprisingly hard. Nearly everything he found was a scholarly monograph assuming an immense erudition in a narrow field. Nothing for the common man, if that much misunderstood animal still existed. And the closer he got to the present, the fewer references there were—understandable enough, especially in a civilization whose future seemed all to lie behind it.

The most important discovery since the superdrive was, he gathered, the paramathematical theory of man, both as individual and as society, which had made it possible to reorganize on a stable, predictable, logical basis. There had been no guesswork on the part of the Techne's founders: they didn't think that such and such arrangements for production and distribution would work, they *knew*. The science wasn't

perfect, it couldn't be; such eventualities as the colonial revolts had arisen unforeseen; but the civilization was stable, with high negative feedback, it adjusted smoothly to new conditions.

Too smoothly. The means of sound social organization had not been used to liberate man, but to clamp the yoke more tightly—for a small cadre of scientists had necessarily laid out the plans and seen them through, and they or their descendants (with fine, humane rationalizations they may even have believed themselves) had simply stayed in power. It was, after all, logical that the strong and the intelligent should rule—the ordinary man was simply not capable of deciding issues in a day when whole planets could be wiped clean of life. It was also logical to organize the rules; selective breeding, controlled heredity, psychological training, could produce a slave class which was both efficient and contented, and that too was logical. The ordinary man had not objected to such arrangements, indeed he had accepted them eagerly, because the concentration and centralization of authority which had by and large been increasing ever since the Industrial Revolution had inculcated him with a tradition of subservience. He wouldn't have known what to do with liberty if you gave it to him.

Langley wondered with a certain glumness whether any other outcome would have been possible in the long run.

Chanthavar called up to suggest a tour of the city, Lora, next day. "I know you've found it pretty dull so far," he apologized, "but I have much to do right now. I'd enjoy showing you around tomorrow, though, and answering any questions you may have. That seems the best way for you to get yourselves oriented."

When he had hung up, Matsumoto said: "He doesn't seem a bad guy. But if the setup here's as aristocratic as I think, why should he take so much trouble personally?"

"We're something new, and he's bored," said Blaustein. "Anything for a novelty."

"Also," murmured Langley, "he needs us. I'm pretty sure he can't get anything very coherent out of us under hypnosis or whatever they use nowadays, or we'd've been in the calaboose long ago."

"You mean the Saris affair?" Blaustein hesitated. "Ed, have you any notion where that overgrown otter is and what he's up to?"

"Not . . . yet," said Langley. They were speaking English, but he was sure there must be a recording microphone somewhere in the room, and translations could be made. "It beats me."

Inwardly, he wondered why he held back. He wasn't cut out for this world of plotting and spying and swift deadly action. He never had been; a spaceman was necessarily a gentle, introverted sort, unable to cope with the backbitings and intrigues of office politics. In his own

time, he had always been able to pull rank when something went wrong—and afterward lie awake wondering whether his judgment had been fair and what the men really thought of him. Now he was nothing.

It would be so easy to give in, coöperate with Chanthavar, and glide with the current. How did he know it wouldn't be right? The Technate seemed to represent order, civilization, justice of sorts; he had no business setting himself up against twenty billion people and five thousand years of history. Had Peggy been along, he would have surrendered, her neck was not one to risk for a principle he wasn't even sure of.

But Peggy was dead, and he had little, except principle to live for. It was no fun playing God, even on this petty scale, but he had come from a society which laid on each man the obligation to decide things for himself.

Chanthavar called the following afternoon, still yawning. "What a time to get up!" he complained. "Life isn't worth the effort before sundown. Well, shall we go?"

As he led them out, half a dozen of his guards closed in around the party. "What're they for, anyhow?" asked Langley. "Protection against the Commons?"

"I'd like to see a Commoner even think about making trouble," said Chanthavar. "If he can think, which I sometimes doubt. No, I need these fellows against my own rivals. Brannoch, for instance, would gladly

knock me off just to get an incompetent successor. I've ferreted out a lot of his agents. And then I have my competitors within the Technate. Having discovered that bribery and cabals won't unseat me, they may very well try the less subtle but direct approach."

"What would they stand to gain by . . . assassinating you?" inquired Blaustein.

"Power, position, maybe some of my estates. Or they may be out and out enemies: I had to kick in a lot of teeth on my own way up, there aren't many influential offices these days. My father was a very petty Minister on Venus, my mother a Commoner concubine. I only got rank by passing certain tests and . . . elbowing a couple of half brothers aside." Chanthavar grinned. "Rather fun. And the competition does keep my class somewhat on its toes, which is why the Technon allows it."

They emerged on a bridgeway and let its moving belt carry them along, dizzily high over the city. At this altitude, Langley could see that Lora was built as a single integrated unit: no building stood alone, they were all connected, and there was a solid roof underneath decking over the lower levels. Chanthavar pointed to the misty horizon, where a single great tower reared skeletal. "Weather-control station," he said. "Most of what you see belongs to the city, Ministerial public park, but over that way is the boundary of an estate belonging to Tarahoë. He raises grain on it, being a back-to-nature crank."

"Haven't you any small farms?" asked Langley.

"Space, no!" Chanthavar looked surprised. "They do on the Centaurian planets, but I'd find it hard to imagine a more inefficient system. A lot of our food is synthesized, the rest is grown on Ministerial lands—in fact, the mines and factories, everything is owned by some Minister. That way, our class supports itself as well as the Commons, who on the extrasolar planets have to pay taxes. Here, a man can keep what he earns. Public works like the military forces are financed by industries owned in the name of the Technon."

"But what do the Commoners do?"

"They have jobs—mostly in the cities, a few on the land. Some of them work for themselves, as artisans or meditechs or something similar. The Technon gives the orders on how to balance population and production, so that the economy runs a smooth course. Here, this ought to interest you."

It was a museum. The general layout had not changed much, though there was a lot of unfamiliar gadgetry for better exhibition. Chanthavar led them to the historical-archeological section, the centuries around their own time. It was saddening how little had survived: a few coins, age-blurred in spite of electrolytic restoration; a chipped glass tumbler; a fragment of stone bearing the defaced name of some bank; the corroded remnant of a flintlock musket, found in the Sahara when it was being reclaimed; broken marble which had

once been a statue. Chanthavar said that the Egyptian pyramids, part of the Sphinx, traces of buried cities, a couple of ruined dams in America and Russia, some hydrogen-bomb craters, were still around, otherwise nothing earlier than the Thirty-fifth Century. Time went on, relentlessly, and one by one the proud works of man were lost.

Langley found himself whistling, as if to keep up his courage. Chanthavar cocked an inquisitive head. "What's that?"

"Conclusion to the Ninth Symphony—*Freude, schöne Götterfunken*—ever hear of it?"

"No." There was a curious, wistful expression on the wide bony face. "It's a shame. I rather like that."

They had lunch at a terrace restaurant, where machines served a gaily dressed, stiff-mannered clientele of aristocrats. Chanthavar paid the bill with a shrug. "I hate to put money into the purse of Minister Agaz—he's after my head—but you must admit he keeps a good chef."

The guards did not eat; they were trained to a sparse diet and an untiring watchfulness.

"There's a lot to see, here in the upper levels," said Chanthavar. He nodded at the discreet glow-sign of an amusement house. "But it's more of the same. Come on downside for a change."

A gravity shaft dropped them two thousand feet, and they stepped into another world.

Here there was no sun, no sky;



walls and ceiling were metal, floors were soft and springy, and a ruler-straight drabness filled Langley's vision. The air was fresh enough, but it throbbed and rang with a noise that never ended—pumping, hammering, vibrating, the deep steady heartbeat of that great machine which was the city. The corridors—streets—were crowded, restless, alive with motion and shrill talking.

So these were the Commoners. Langley stood for a moment in the shaft entrance, watching them. He didn't know what he had expected—gray-clad zombies, perhaps—but he was surprised. The disorderly mass reminded him of cities he had seen in Asia.

Dress was a cheap version of the Ministerial: tunics for men, long dresses for women; it seemed to fall into a number of uniforms, green and blue and red, but was sloppily worn. The men's heads were shaven; the faces reflected that mixture of races which man on Earth had become; there were incredible numbers of naked children playing under the very feet of the mob; there was not that segregation of the sexes which the upper levels enforced.

A booth jutting out from one wall was filled with cheap pottery, and a woman carrying a baby in her arms haggled with the owner. A husky, near-naked porter sweated under a load of machine parts. Two young men squatted in the middle of traffic, shooting dice. An old fellow sat dreamily with a glass in his hand, just inside the door of a tavern. A

clumsy fist fight, watched by a few idlers, went on between a man in red and one in green. An obvious streetwalker was making up to a moronic-looking laborer. A slim, keen-faced merchant—from Gany-medé, Chanthavar said—was talking quietly with a fat local buyer. A wealthy man rode a tiny two-wheeler down the street, accompanied by two servants who cleared a way for him. A jeweler sat in his booth, hammering on a bracelet. A three-year-old stumbled, sat down hard, and broke into a wail which everybody ignored—it could barely be heard through all the racket. An apprentice followed his master, carrying a tool box. A drunk sprawled happily against the wall. A vendor pushed a cart full of steaming tidbits, crying his wares in a singsong older than civilization. So much Langley could see, then it faded into the general turbulence.

Chanthavar offered cigarettes, struck one for himself, and led the way behind a couple of guards. People fell aside, bowing respectfully and then resuming their affairs. "We'll have to walk," said the agent. "No slideways down here."

"What are the uniforms?" asked Blaustein.

"Different trades — metalworker, food producer, and so on. They have a guild system, highly organized, several years' apprenticeship, and there's a lot of rivalry between the guilds. As long as the Commons do their work and behave themselves, we leave them pretty much alone. The police—city-owned slaves—

keep them in line if real trouble ever starts." Chanthavar pointed to a burly-clad man in a steel helmet. "It doesn't matter much what goes on here. They haven't the weapons or the education to threaten anything; such schooling as they get emphasizes how they must fit themselves to the basic system."

"Who's that?" Matsumoto gestured to a man in form-fitting scarlet, his face masked, a knife in his belt, who slipped quietly between people indisposed to hinder him.

"Assassins' guild, though mostly they hire out to do burglaries and beatings. The Commons aren't robots—we encourage free enterprise. They're not allowed firearms, so it's safe enough and keeps the others amused."

"Divided, you mean," said Langley.

Chanthavar spread his hands. "What would you do? It isn't possible to have equality. It's been tried again and again in history, giving everybody a vote, and it's always failed—always, in a few generations, the worse politicians drove out the better. Because by definition, half the people always have below-average intelligence; and the average is not high. Nor can you let these mobs go just anywhere—Earth's too crowded."

"It's a cultural matter," said Langley. "I know a lot of countries back around my own time started out with beautiful constitutions and soon fell into dictatorship: but that was because there was no background, no

tradition. Some, like Great Britain, made it work for centuries, because they did have that kind of society, that . . . common-sense attitude."

"My friend, you can't make over a civilization," said Chanthavar, "and in reforming one, you have to use the materials available. The founders of the Technate knew that. It's too late; it was always too late. Look around you—think these apes are fit to decide public policy?" He sighed. "Read your history and face it: war, poverty, and tyranny are the natural condition of man, the so-called golden ages are freak fluctuations which soon collapse because they don't fit a creature only three hundred lifetimes out of the caves. Life is much too short to spend trying to alter the laws of nature. Ruthless use of strength is the law of nature."

Langley gave up, became a tourist. He was interested in the factories, where men were ants scurrying around the metal titans they had built; in the schools, where a few years including hypnotic indoctrination were enough to teach the needed rudiments; in the dark, smoky, rau-
cous taverns; in the homes, small crowded apartments with a moderate comfort, even stereoscopic shows of appropriate imbecility, and a rather cheerful, indulgent family life in a temple, where a crowd swaying and chanting its hymns to Father reminded him of an old-time camp meeting; in the little shops which lined the streets, last survival of handicraft and a surprisingly good folk art; in the market, which filled a gigantic

open circle with shrilling women—
Yes, a lot to see.

After dinner, which was at a spot patronized by the wealthier Common merchants, Chanthavar smiled. "Near walked my legs off today," he said. "Now how about some fun? A city is known by its vices."

"Well . . . O.K.," said Langley. He was a little drunk, the sharp pungent beer of the lower levels buzzed in his head. He didn't want women, not with memory still a bright pain in him, but there ought to be games and— His purse was full of bills and coins. "Where to?"

"Dreamhouse, I think," said Chanthavar, leading them out. "It's a favorite resort for all levels."

The entrance was a cloudy blueness opening into many small rooms. They took one, slipping life-masks over their faces: living synthetic flesh which stung briefly as it connected to nerve endings in the skin and then was part of you. "Everybody's equal here, everybody anonymous," said Chanthavar. "Refreshing."

"What is your wish, sirs?" The voice came from nowhere, cool and somehow not human.

"General tour," said Chanthavar. "The usual. Here . . . put a hundred solars in this slot, each of you. The place is expensive, but fun."

They relaxed on what seemed a dry, fluffy cloud, and were carried aloft. The guards formed an impassive huddle some distance behind. Doors opened for them. They hung

under a perfumed sky of surrealistic stars and moons, looking down on what appeared to be a deserted landscape not of Earth.

"Part illusion, part real," said Chanthavar. "You can have any experience you can imagine here, for the right price. Look—"

The cloud drifted through a rain which was blue and red and golden fire, tingling as it licked over their bodies. Great triumphant chords of music welled around them. Through the whirling flames, Langley glimpsed girls of an impossible loveliness, dancing on the air.

Then they were underwater, or so it seemed, with tropical fish swimming through a green translucence, corals and waving fronds underneath. Then they were in a red-lit cavern, where the music was a hot pulse in the blood and they shot at darting containers which landed to offer a drink when hit. Then they were in a huge and jolly company of people, singing and laughing and dancing and guzzling. A pneumatic young female giggled and tugged at Langley's arm—briefly, he wavered, there must be some drug in the air, then he said harshly: "Scram!"

Whirled over a roaring waterfall, sporting through air which was somehow thick enough to swim in, gliding past grottoes and glens full of strange lights, and on into a gray swirling mist where you could not see a yard ahead. Here, in a dripping damp quiet which seemed to mask enormousness, they paused.

Chanthavar's shadowy form ges-

tured, and there was a queer tone in his muffled voice: "Would you like to play Creator? Let me show you—" A ball of raging flame was in his hands, and from it he molded stars and strewed them through sightless immensity. "Suns, planets, moons, people, civilizations and histories—you can make them here as you please." Two stars crashed into each other. "You can will yourself to see a world grow, any detail no matter how tiny, a million years in a minute or a minute stretched through a million years; you can smite it with thunder, and watch them cower and worship you." The sun in Chanthavar's hands glowed dully through the fog. Tiny sparks which were planets flitted around it. "Let me clear the mist let there be light. Let there be Life and a History!"

Something moved in the wet smoky air. Langley saw a shadow striding between new-born constellations, a thousand light-years tall. A hand gripped his arm, and dimly he saw the pseudo-face beyond.

He writhed free, yelling, as the other hand sought his neck. A wire loop snaked out, tangling his ankles. There were two men now, closing in on him. Wildly, he groped backward. His fist connected with a cheek which bled artificial blood.

"Chanthavar!"

A blaster crashed, startlingly loud and brilliant. Langley hurled a giant red sun into one of the faces wavering near him. Twisting free of an arm about his waist, he kneed the

vague form and heard a grunt of pain.

"Light!" bellowed Chanthavar. "Get rid of this mist!"

The fog broke, slowly and raggedly. There was a deep clear blackness, the dark of outer vacuum, with stars swimming in it like fireflies. Then full illumination came on.

A man sprawled dead near Chanthavar, his stomach torn open by an energy bolt. The guards milled uneasily. Otherwise they were alone. The room was bare, coldly lit, Langley thought somewhere in his lurching mind that it was cruel to show the emptiness here where there had been dreams.

For a long moment, he and the agent stared at each other. Blaustein and Matsumoto were gone.

"Is . . . this . . . part of the fun?" asked Langley through his teeth.

"No." A hunter's light flickered in Chanthavar's eyes. He laughed. "Beautiful job! I'd like to have those fellows on my staff. Your friends have been stunned and kidnaped under my own eyes. Come on!"

VII

There was a time of roaring confusion, as Chanthavar snapped orders into a visiphone, organizing a chase. Then he swung around to Langley. "I'll have this warren searched, of course," he said, "but I don't imagine the kidnapers are still in it. The robots aren't set to notice who goes out in what condition, so that's no help. Nor do I ex-

pect to find the employee of this place who helped fix matters up for the snatch. But I've got the organization alerted, there'll be a major investigation hereabouts inside half an hour. And Brannoch's quarters are being watched already."

"Brannoch?" repeated Langley stupidly. His brain felt remote, like a stranger's, he couldn't throw off the air-borne drugs as fast as the agent.

"To be sure! Who else? Never thought he had this efficient a gang on Earth, but— They won't take your friends directly to him, of course, there'll be a hideout somewhere in the lower levels, not too much chance of finding it among fifteen million Commoners, but we'll try. We'll try!"

A policeman hurried up with a small, metal-cased object which Chanthavar took. "Peel off that mask. This is an electronic scent-tracer, we'll try to follow the trail of the pseudo-faces—distinctive odor, so don't you confuse it. I don't think the kidnapers took the masks off in Dreamhouse, then someone might notice who they were carrying. Stick with us, we may need you. Let's go!"

A score of men, black-clad, armed, and silent, surrounded them. Chanthavar cast about the main exit. There was something of the questing hound over him—the aesthete, the hedonist, the casual philosopher, were blotted up in the hunter of men. A light glowed on the machine. "A trail, all right," he muttered. "If only it doesn't get cold

too fast— Damn it, why must they ventilate the lowers so well?" He set off at a rapid jog trot, his men keeping an easy pace. The milling crowds shrank away.

Langley was too bewildered to think. This was happening faster than he could follow, and the drugs of Dreamhouse were still in his blood, making the world unreal. Bob, Jim, now the great darkness had snatched them too, and would he ever see them again?

Why?

Down a drop-shaft, falling like autumn leaves, Chanthavar testing each exit as he passed it. The unceasing roar of machines grew louder, more frantic. Langley shook his head, trying to clear it, trying to master himself. It was like a dream, he was carried willessly along between phantoms in black, and—

He had to get away. He had to get off by himself, think in peace; it was an obsession now, driving everything else out of his head, he was in a nightmare and he wanted to wake up. Sweat was clammy on his skin.

The light flashed, feebly. "This way!" Chanthavar swung out of a portal. "Trail's weakening, but maybe—"

The guards pressed after him. Langley hung back, dropped farther, and stepped out at the next level down.

It was an evil section, dim-lit and dingy, the streets almost deserted. Closed doors lined the walls, litter

blew about under his feet, the stamping and grinding of machines filled his universe. He walked fast, turning several corners, trying to hide.

Slowly, his brain cleared. An old man in dirty garments sat cross-legged beside a door, watching him out of filthy eyes. A small group of grimed children played some game under the white glare of a fluorolamp in the street ceiling. A sleazy woman slunk close to him, flashing bad teeth in a mechanical smile, and fell behind. A tall young man, ragged and unshaven, leaned against the wall and followed his movements with listless eyes. This was the slum, the oldest section, poor and neglected, last refuge of failure; this was where those whom the fierce life of the upper tiers had broken fled, to drag out lives of no importance to the Technon. Under the noise of mills and furnaces, it was very quiet.

Langley stopped, breathing hard. A furtive hand groped from a narrow passage, feeling after the purse at his belt. He slapped, and the child's bare feet pattered away into darkness.

Fool thing to do, he thought. I could be murdered for my cash. Let's find us a cop and get out of here, son.

He walked on down the street. A legless beggar whined at him, but he didn't dare show his money. New legs could have been grown, but that was a costly thing. Well behind, a tattered pair followed him. Where was a policeman? Didn't anyone care what happened down here?

A huge shape came around a corner. It had four legs, a torso with arms, a nonhuman head. Langley halted it. "Which is the way out? Where's the nearest shaft going up? I'm lost."

The alien looked blankly at him and went on. *No spikka da Ingles.* Etie Town, the section reserved for visitors of other races, was somewhere around here. That might be safe, though most of the compartments would be sealed off, their interiors poisonous to him. Langley went the way the stranger had come. His followers shortened the distance between.

Music thumped and wailed from an open door. There was a bar, a crowd, but not the sort where he could look for help. As the final drug-mists cleared, Langley realized that he might be in a very tight fix.

Two men stepped out of a passage. They were husky, well dressed for Commoners. One of them bowed. "Can I do you a service, sir?"

Langley halted, feeling the coldness of his own sweat. "Yes," he said thickly. "Yes, thanks. How do I get out of this section?"

"A stranger, sir?" They fell in, one on either side. "We'll conduct you. Right this way."

Too obliging! "What are you doing down here?" snapped Langley.

"Just looking around, sir."

The speech was too cultivated, too polite. *These aren't Commoners any more than I am!* "Never mind, I... I don't want to bother you. Just point me right."

"Oh, no, sir. That would be dangerous. This is not a good area to be alone in." A large hand fell on his arm.

"No!" Langley stopped dead.

"We must insist, I'm afraid." An expert shove, and he was being half dragged. "You'll be all right, sir, just relax, no harm."

The tall shape of a slave policeman hove into view. Langley's breath rattled in his throat. "Let me go," he said. "Let me go, or—"

Fingers closed on his neck, quite unobtrusively, but he gasped with the pain. When he had recovered himself, the policeman was out of sight again.

Numbly, he followed. The portal of a grav-shaft loomed before him. *They tracked me.* he thought bitterly. *Of course they did. I don't know how stupid a man can get, but I've been trying hard tonight. And the price of this stupidity is apt to be total!*

Three men appeared, almost out of nowhere. They wore the gray robes of the Society. "Ah," said one, "you found him. Thank you."

"What's this?" Langley's companions recoiled. "Who're you? What d'you want?"

"We wish to see the good captain home," answered one of the newcomers. His neatly bearded face smiled, a gun jumped into his hand.

"That's illegal... that weapon—"

"Possibly. But you'll be very dead if you don't— That's better. Just come with us, captain, if you please."

Langley entered the shaft between



his new captors. There didn't seem to be much choice.

VIII

The strangers did not speak, but hurried him along. They seemed to know all the empty byways, their progress upwards was roundabout but fast and hardly another face was seen en route. Langley tried to relax, feeling himself swept along a dark and relentless tide.

Upper town again, shining pinnacles and loops of diamond light against the stars. The air was warm and sweet in his lungs, he wondered how much longer he would breathe it. Not far from the shaft exit, a

massive octagonal tower reared out of the general complex, its architecture foreign to the slim soaring exuberance which was Techname work. A nimbus of radiance hung over its peak, with letters of flame running through it to spell out COMMERCIAL SOCIETY. Stepping onto a bridgeway, the four were borne up toward a flange near its middle.

As they got off onto the ledge, a small black aircraft landed noiselessly beside them. A voice came from it, amplified till it boomed through the humming quiet: "Do not move farther. This is the police."

Police! Langley's knees felt suddenly watery. He might have known —Chanthavar would not leave this

place unwatched, he had sent an alarm when the spaceman was found missing, the organization was efficient, and now he was saved!

The three traders stood immobile, their faces like wood. A door dilated, and another man stepped from the building as five black-clad slaves and one Ministerial officer got out of the boat. It was Goltan Valti. He waited with the others, rubbing his hands together in a nervous washing motion.

The officer bowed slightly. "Good evening, sir. I am pleased to see you have found the captain. You are to be commended."

"Thank you, my lord," bowed Valti. His voice was shrill, almost piping, and he blew out his fat cheeks and bobbed his shaggy head obsequiously. "It is kind of you to come, but your assistance is not required."

"We will take him home for you," said the officer.

"Oh, sir, surely you will permit me to offer my poor hospitality to this unfortunate stranger. It is a firm rule of the Society, a guest may never leave without being treated."

"I am sorry, sir, but he must." In the vague, flickering light, the officer scowled, and there was a sharp ring in his tones. "Later, perhaps. Now he must come with us. I have my orders."

Valti bowed and scraped. "I sympathize, sir, these dim eyes weep at the thought of conflict with your eminence, but poor and old and helpless worm though I be"—the whine

faded into a buttery purr—"nevertheless, I am forced to remind you, my lord, much against my will, which is only for pleasant relationships, that you are outside your jurisdiction. By the Treaty of Lunar, the Society has extraterritorial rights. Honored sir, I pray you not to force me into requesting your passport."

The officer grew rigid. "I told you I had my orders," he said thinly.

The trader's bulky shape loomed suddenly enormous against the sky. His beard bristled. But the voice remained light: "Sir, my nose bleeds for you. But be so kind as to remember that this building is armed and armored. A dozen heavy guns are trained on you, and I must regretfully enforce the law. The captain will take refreshment with me. Afterward he shall be sent to his home, but at present it is most inhospitable to keep him standing in this damp air. Good evening, sir." He took Langley's arm and walked him to the door. The other three followed, and the door closed behind them.

"I suppose," said the spaceman slowly, "that what I want isn't of much account."

"I had not hoped to have the honor of talking with you privately so soon, captain," answered Valti. "Nor do I think you will regret a chat over a cup of good Ammonite wine. It gets a little bruised in transit, so delicate a palate as yours will detect that, but I humbly assert that it retains points of superiority."

They had gone down a hall, and

now a door opened for them. "My study, captain," bowed Valti. "Please enter."

It was a big, low-ceilinged, dim-lit room, lined with shelves which held not only microspools but some authentic folio volumes. The chairs were old and shabby and comfortable, the desk was big and littered with papers, there was a haze of strong tobacco in the rather stuffy air. Langley's attention was drawn to a screen in which a stereoscopic figure was moving. Briefly, he failed to understand the words—

*"Existence or nullity—thus the problem:
Whether more free-born mentally to endure
The blasts and bolts of adverse chance occurrence,
Or to shoot through a universe of troubles,
And counteracting, annul them?"*

Then he realized. The actor had a queue; he wore a fur cap, a lacquered breastplate, and flowing black robes; he was reaching for a scimitar; the background was a kind of Grecian temple—but by all the gods, it was still Hamlet!

"An old folk play, I believe, captain," said Valti, shuffling up behind him. "They've been putting on some revivals lately—interesting material. I believe this is Martian of the Interregnum period."

"No," said Langley. "A bit older than that."

"Oh? From your own time, even?

Very interesting!" Valti switched it off. "Well, pray sit down and be comfortable. Here comes refreshment."

A creature the size of a monkey, with a beaked face and strangely luminous eyes beneath small antennae, entered bearing a tray in skinny arms. Langley found a chair and accepted a cup of hot spiced wine and a plate of cakes. Valti wheezed and drank deep. "Ah! That does these rheumatic old bones good. I fear medicine will never catch up with the human body, which finds the most ingenious new ways of getting deranged. But good wine, sir, good wine and a pretty girl and the dear bright hills of home, there is the best medicine that will ever be devised. Cigars, Thakt, if you please."

The monkey-thing leaped grotesquely to the desk and extended a box. Both men took one, and Langley found his good. The alien sat on Valti's shoulder, scratching its own green fur and giggling. Its eyes never left the spaceman.

"Well—" After the last couple of hours, Langley felt exhausted. There was no more fight in him, he relaxed and let the weariness run through nerve and muscle. But his head seemed abnormally clear. "Well, Mr. Valti, what was all this foofaraw about?"

The trader blew smoke and sat back, crossing his stumpy legs. "Events are beginning to move with uncomfortable rapidity," he said in a quiet tone. "I'm glad this chance came to see you."

"Those cops seemed anxious that I shouldn't."

"Of course." The deep-sunken little eyes twinkled. "But it will take them some time to line up those collections of reflexes they call brains and decide to attack me; by then, you will be home, for I shall not detain you long. The good Chanthavar, now, would not stall, but he is fortunately engaged elsewhere."

"Yes . . . trying to find my friends." Langley felt a dull grief in him. "Do you know they were taken?"

"I do." There was sympathy in the tone. "I have my own agents in the Solar forces, and know more or less all which happened tonight."

"Then—where are they? How are they?"

Bleakness twisted the half-hidden mouth. "I am very much afraid for them. They are probably in the power of Lord Brannoch. They may be released, I don't know, but—" Valti sighed. "I've no spies in his organization, nor he in mine . . . I hope; both of them are too small, too uncorrupted, too well set up—unlike Sol's. We must be very much in the dark with regard to each other."

"Are you sure, then, that it was he who—"

"Who else? Chanthavar had no need that I can see to stage such an affair, he could order all of you arrested any time he chose. None of the other foreign states are in this at all, they are too weak. Brannoch is known to head Centaurian mili-

tary intelligence at Sol, though so far he has been clever enough to leave no evidence which would be grounds for his expulsion. No, the only powers which count in this part of the galaxy are Sol, Centauri, and the Society."

"And why," asked Langley slowly, "would Brannoch take them?"

"Isn't it obvious? The alien, Saris Hronna I think he's called. They may know where to find him."

"You don't realize what a fever he has thrown all of us into. You have been watched every minute by agents of all three powers. I toyed with the idea of having you snatched myself, but the Society is too peaceful to be very good at that sort of thing, and Brannoch beat us to it. The moment I learned what had happened, I sent a hundred men out to try to locate you. Fortunately, one group succeeded."

"They almost didn't," said Langley. "They had to take me away from two others—Centaurians, I suppose."

"Of course. Well . . . I don't think Brannoch will try to assault this stronghold, especially since he will have hopes of getting the information from your friends. Do you think he will?"

"Depends." Langley narrowed his eyes and took a long drag of smoke. "I doubt it, though. They never got very intimate with Saris. I did—we used to talk for hours—though I still can't claim to know just what makes him tick."

"Ah, so." Valti took a noisy sip

of wine. There was no expression in the heavy face. "Do you know why he is so important?"

"I think so. Military value of his ability to damp out or control electronic currents and so forth. But I'm surprised you haven't got a machine to do the same thing."

"Science died long ago," said Valti. "I, who have seen worlds where they are still progressing, though behind us as yet, know the difference between a living science and a dead one. The spirit of open-minded inquiry became extinct in known human civilizations quite a while back: the rigidity of social forms, together with the fact that research no longer discovered anything not predicted by theory, caused that. It was, after all, reasonable to assume that the variety of natural laws was finite, that a limit had been reached. Nowadays, the very desire to inquire further is lacking. Sol is stagnant, the other systems barbaric under their façade of machine technology, the Society too loosely organized to support a scientific community. A dead end, yes, yes, so it goes."

Langley tried to concentrate on abstractions, to escape the new fear which gnawed in his breast. "And so now something turns up which is *not* accounted for by standard theory. And everybody wants to study it and learn about it and duplicate it on a grand scale for military purposes. Yeah. I get the idea."

Valti looked at him under droop-

ing lids. "There are, of course, ways to make a man talk," he said. "Not torture—nothing so crude—but drugs which unlock the tongue. Chanthavar has hesitated to use them on you, because if you do not, after all, have an idea where Saris is, the rather unpleasant process could easily set up a subconscious bloc which would forbid you to think further about the problem. However, he may now be desperate enough to do so. He will surely do it the moment he suspects you have deduced something. Have you?"

"Why should I tell you?"

Valti looked patient. "Because only the Society can be trusted with a decisive weapon."

"Only one party can," said Langley dryly, "but which party depends on who you're talking to. I've heard that song before."

"Consider," said Valti. His voice remained dispassionate. "Sol is a petrified civilization, interested only in maintaining the *status quo*. The Centaurians brag a great deal about frontier vigor, but they are every bit as dead between the ears; if they won, there would be an orgy of destruction followed by a pattern much the same, nothing new except a change of masters. If either system suspects that the other has gotten Saris, it will attack at once, setting off the most destructive war in a history which has already seen destruction on a scale you cannot imagine. The other, smaller states are no better, even if they were in a position to use the weapon effectively."

"I don't know," said Langley. "What people seem to need today is a good swift kick in the pants. Maybe Centauri can give it to them."

"Not with any beneficial effect. What is Centauri? A triple-star system. Alpha A has two habitable planets, Thor and Freyja. Alpha B has two semi-poisonous ones slowly being made habitable. Proxima is a dim red dwarf with one inhabited planet, the frigid giant Thrym. Otherwise there are only mining colonies maintained with great difficulty. The Thorians conquered and assimilated the men of the other worlds long ago. They established contact with the Thrymans, showed them modern technology; soon the natives—already highly civilized—were equal to their teachers. Then Thrym denied them right to settle the Proxima System. A war was fought over it, which ended officially in compromise and unification; actually, Thrym had the upper hand, and its representatives occupy key positions in the League. Brannoch has Thryman advisors here on Earth, and I wonder who is really the chief.

"I've no prejudice against nonhumans, but Thrym makes me feel cold. They're too remote from man, I think they have little use for him except as a tool toward some purpose of their own. Study the situation, study history, and I think you'll agree. A Centaurian conquest, quite apart from the killing of some billions of innocent people, would not be an infusion of invigorating barbarian blood. It would be a move in

a very old and very large chess game."

"All right." Langley gave up. "Maybe you're right. But what claim has your precious Society got? Who says you're a race of—" He paused, realized that there was no word for saint or angel, and finished weakly: "Why do you deserve anything?"

"We are not interested in imperialism," said Valti. "We carry on trade between the stars—"

"Probably cleaning the pants off both ends."

"Well, an honest businessman has to live. But we have no planet, we are not interested in having one, our home is space itself. We do not kill except in self-defense; normally we avoid a fight by simply retreating, there is always plenty of room in the universe and a long jump makes it easy to overcome your enemies by merely outliving them. We are a people to ourselves, with our own history, traditions, laws—the only humane and neutral power in the known galaxy."

"Tell me more," said Langley. "So far I've only got your word. You must have some central government, someone to make decisions and coordinate you. Who are they? Where are they?"

"I will be perfectly honest, captain," said Valti in a soft tone. "I do not know."

"Eh?"

"No one knows. Each ship is competent to handle ordinary affairs for itself. We file reports at the plan-

etary offices, pay our tax—where the reports and the money go, I don't know, nor do the groundlings in the offices. There is a chain of communications, a cell-type secret bureaucracy which would be impossible to trace through tens of light-years. I rank high, running the Solar offices at present, and can make many decisions for myself, but I get special orders now and then through a sealed circuit. There must be at least one of the chiefs here on Earth, but where and who—or what—I couldn't say."

"How does this . . . government . . . keep you in line?"

"We obey," said Valti. "Ship discipline is potent, even on those who like myself are recruited from planets rather than born in space. The rituals, the oaths—conditioning, if you will—I know of no case where an order has been deliberately violated. But we are a free people, there is no slavery and no aristocracy among us."

"Except for your bosses," murmured Langley. "How do you know they're working for your own good?"

"You needn't read any sinister or melodramatic implications into a security policy, captain. If the headquarters and identity of our chiefs were known, they would be all too liable to attack and annihilation. As it is, promotion to the bureaucracy involves complete disappearance, probably surgical disguise; I will gladly accept the offer if it is ever made to me."

"Under its bosses, as you call them, the Society has prospered in the thousand years since its founding. We are a force to be reckoned with. You saw how I was able to make that police officer knuckle under."

Valti took a deep breath and plunged into business: "I have not, as yet, received any commands about Saris. If I had been told to keep you prisoner, be sure you would not leave here. But as things are, I still have considerable latitude.

"Here is my offer. There are small interplanetary flitters hidden here and there on Earth. You can leave anytime. Away from Earth, safely concealed by sheer volume of space unless you know her orbit, is an armed light-speed cruiser. If you will help me find Saris, I will take you two away, and do what I can to rescue your companions. Saris will be studied, but he will not be harmed in any manner, and if he wishes can later be returned to his home world. You can join the Society, or you can be set up on some human-colonized planet beyond the region known to Sol and Centauri. There are many lovely worlds out there, a wide cultural variety, places where you can feel at home again. Your monetary reward will give you a good start.

"I do not think you will like Earth any more, captain. Nor do I think you will like the responsibility of unleashing a war which will devastate planets. I believe your best course is with us."

Langley stared at the floor. Wear-



ness was close to overwhelming him. To go home, to creep down light-years and centuries until he found Peggy again, it was a scream within him.

But—

"I don't know," he mumbled. "How can I tell if you're not lying?" With an instinct of self-preservation: "I don't know where Saris is either, you realize. Doubt if I can find him myself."

Valti lifted a skeptical brow, but said nothing.

"I need time to think," pleaded Langley. "Let me sleep on it."

"If you wish." Valti got up and rummaged in a drawer. "But remember, Chanthavar or Brannoch may soon remove all choice from you. Your decision, if it is to be your own, must be made soon."

He took out a small, flat plastic box and handed it over. "This is a communicator, keyed to a frequency which varies continuously according to a random-chosen series. It can only be detected by a similarly tuned instrument which I possess. If you want me, press this button and call; it need not be held to your mouth. I may even be able to rescue you from armed force, though it's best to be quiet about this affair. Here . . . keep it next to your skin, under your clothes, it will hang on of itself and is transparent to ordinary spy-beams."

Langley rose. "Thanks," he muttered. "Decent of you to let me go." *Or is it only a trick to disarm me?*

"It's nothing, captain." Valti wad-

dled ahead of him to the outside flange. An armored police craft hovered just beyond its edge. "I believe transportation home is waiting for you. Good night, sir."

"Good night," said Langley.

IX

Weather Control had decreed rain for this area today, and Lora stood under a low gray sky with her highest towers piercing its mists. Looking out of the window which made one wall of his living room, Brannoch saw only a wet metal gleam, fading into the downward rush of rain. Now and then lightning flickered, and when he told the window to open there was a cool damp breeze on his face.

He felt caged. As he paced the room, up and down and around, there was rage in his heart, and he snapped his report as if every word had to be bitten off and spat out.

"Nothing," he said. "Not one damned sterile thing. They didn't know. They had no idea where the creature might be. Their memories were probed down to the cellular level, and nothing turned up we could use."

"Has Chanthavar any clue?" asked the flat mechanical voice.

"No. My Mesko agent's last report said that a warehouse was broken into the night that flier was stolen, and several cases of space rations removed. So all the being had to do was hide these in whatever den he's got, release the flier on

automatic, and settle down to wait. Which he's apparently been doing ever since."

"It would be strange if human food would sustain him indefinitely," said Thrymka. "The probabilities all favor his dietary requirements being at least slightly different from yours —there will be some small cumulative deficiency or poisoning. Eventually he will sicken and die."

"That may take weeks," snarled Brannoch, "and meanwhile he may find some way of getting what he needs—it may only be some trace element, titanium or—anything. Or he may make a deal with one of the parties looking for him. I tell you, there's no time to lose!"

"We are well aware of that," answered Thrymka. "Have you punished your agents for their failure to get Langley, too?"

"No. They tried, but luck was against them. They almost had him, down in the Old City, but then armed members of the Society took him away. Could he have been bribed by Valti? It might be a good idea to knock that fat slug off."

"No."

"But—"

"No. Council policy forbids murder of a Society member."

Brannoch shrugged bitterly. "For fear they'll stop trading with Centauri? We should be building our own merchant ships. We should be independent of everybody. There'll come a day when the Council will see—"

"After you have founded a new

dynasty to rule over a Centaurian interstellar hegemony? Perhaps!" There was the faintest tilt of sardonicism in the artificial voice. "But continue your report; you know we prefer verbal communication. Did not Blaustein and Matsumoto have any useful information at all?"

"Well . . . yes. They said that if anyone could predict where Saris is and what he'll do, it's Langley. Just our luck that he was the one man we did not succeed in grabbing. Now Chanthavar has mounted such a guard over him that it'd be impossible." Brannoch ran a hand through his yellow mane. "I've put an equal number of my men to watching him, of course. They'd at least make it difficult for Chanthavar to spirit him away. For the time being, it's a deadlock."

"What disposition has been made of the two prisoners?"

"Why . . . they're still in the Old City hideout. Anesthetized. I thought I'd have memory of the incident wiped from them, and let them go. They're not important."

"They may be," said the monster—or the monsters. "If returned to Chanthavar, they will be two hostages by which he may be able to compel Langley's coöperation; which is something we cannot do without showing our hands too much, probably getting ourselves deported. But it is dangerous and troublesome for us to keep them. Have them killed and the bodies disintegrated."

Brannoch stopped dead. After a long time, during which the beat of

rain against the window seemed very loud, he shook his head. "No."

"Why not?"

"Assassination in the line of business is one thing. But we don't kill helpless prisoners on Thor."

"Your reason is logically insufficient. Give the orders."

Brannoch stood quiet. The concealing wall pattern swirled slowly before his eyes; opposite it, rain was liquid silver running down the single big pane.

It struck him suddenly that he had never seen a Thryman. There were stereographs, but under the monstrous weight of their atmosphere, dragged down by a planet of fifty thousand miles diameter and three Earth gravities, no man could live. Theirs was a world in which ice was like rock to form mountains, where rivers and seas of liquid ammonia raged through storms which could swallow Earth whole, where life based its chemistry on hydrogen and ammonia instead of oxygen and water, where explosions of gas burned red through darkness, where the population of the dominant species was estimated at fifty billions and a million years of recorded history had united them in one unhuman civilization—it was not a world for men, and he wished sometimes that men had never sent robots down to contact the Thrymans, never traded instruction in the modern science which alone was able to maintain vacuum tubes against that pressure, for their chemicals.

He considered what was going on inside that tank. Four thick disks, six feet in diameter, slaty blue, each stood on six short legs with wide, clawed feet; between each pair of legs was an arm ending in a three-fingered hand of fantastic strength. A bulge in the center of the disk was the head, rigidly fixed, with four eyes arranged around a trunklike feeler on top and tympana for ears; underneath was the mouth and another trunk which was nose and feeder. You could not tell one from another, not by appearance or acts. It made no difference whether Thrymka-1 or Thrymka-2 spoke.

"You are debating whether or not to refuse," said the microphonic voice. "You are not especially fond of us."

That was the damnable part of it. At short range, a Thryman could read your mind, you could have no thought and make no plan which he didn't know. It was one reason why they were valuable advisors. The other reason was tied in with the first: by joining feelers, they could discard spoken language, communicate directly by thought—nerve to nerve, a linkage in which individuality was lost and several intelligent, highly specialized entities became one brain of unimaginable power. The advice of such multi-brains had done much to give the League of Alpha Centauri its present strength.

But they weren't human. They weren't remotely human, they had almost nothing in common with man. They traded within the League, a

swapping of mutually unavailable materials; they sat on the Council, held high executive positions—but the hookup ability made their minds quasi-immortal and altogether alien. Nothing was known of their culture, their art, their ambitions; whatever emotions they had were so foreign that the only possible communication with humankind was on the level of cold logic.

And curse it all, a man was more than a logic machine.

"Your thinking is muddy," said Thrymka. "You may clarify it by formulating your objections verbally."

"I won't have those men murdered," said Brannoch flatly. "It's an ethical question. I'd never forget what I had done."

"Your society has conditioned you along arbitrary lines," said Thrymka. "Like most of your relationship-concepts, it is senseless, contra-survival. Within a unified civilization, which man does not possess, such an ethic could be justified, but not in the face of existing conditions. You are ordered to have those men killed."

"Suppose I don't?" asked Brannoch softly.

"When the Council hears of your insubordination, you will be removed and all your chances for attaining your own ambitions vanish."

"The Council needn't hear. I could crack that tank of yours. You'd explode like deep-sea fish. A very sad accident."

"You will not do that. You cannot dispense with us. Also, the fact

of your guilt would be known to all Thrymans on the Council as soon as you appeared before it."

Brannoch's shoulders slumped. They had him, and they knew it. According to his own orders from home, they had the final say—always.

He poured himself a stiff drink and gulped it down. Then he thumbed a special communicator. "Yantri speaking. Get rid of those two motors. Dismantle the parts. Immediately. That's all."

The rain poured in an endless heavy stream. Brannoch stared emptily out into it. Well—that was that. *I tried.*

The glow of alcohol warmed him. It had gone against the grain, but he had killed many men before, no few of them with his own hand. Did the manner of their death make such a difference? There were larger issues at stake. There was his own nation, a proud folk, should they become the tributaries of this walking corpse which was Solar civilization? Two lives against a whole culture?

And there was the land. Always there was the land, space and fertility, a place to strike roots, a place to build homes and raise sons. There was something unreal about a city. Money was a fever-dream, a will-o'-the-wisp which had exhausted many lives. Only in soil was there strength.

And Earth had fair broad acres.

He shook himself, driving out the last cold which lay in his blood. Much to do yet. "I suppose," he said,

"that you know Langley is coming here today."

"We have read that much in your brain. We are not sure why Chanthavar permits it."

"To get a lead on me, of course, an idea of my procedures. Also, he would have to set himself against higher authorities, some of whom are in my pay, who have decreed that Langley shall have maximum freedom for the time being. There's a good deal of sentimentality about this man from the past and— Well, Chanthavar would defy them if he thought there was something to gain; but right now he wants to use Langley as bait for me. Give me enough voltage to electrocute myself."

Brannoch grinned, suddenly feeling almost cheerful. "And I'll play along. I've no objections at all to his knowing my game at present, because there isn't much he can do about it. I've invited Langley to drop over for a talk. If he knows where Saris is, you can read it in his mind: I'll direct the conversation that way. If he doesn't, then I have a scheme for finding out exactly when he's figured out the problem and what the answer is."

"The balance is very delicate," said Thrymka. "The moment Chanthavar suspects we have a lead, he will take measures."

"I know. But I'm going to activate the whole organization—spying, sabotage, sedition, all over the Solar System. That will keep him busy, make him postpone his arrest and interrogation of Langley till he's

sure the fellow knows. Meanwhile, we can—" A bell chimed. "That must be him now, downshaft. Here we go!"

Langley entered with a slow step, hesitating in the doorway. He looked very tired. His conventional clothes were no disguise for him—even if he had not been of fairly unmixed race, you would have known him for an outsider by his gait, his gestures, a thousand subtle hints. Brannoch thought in a mood of sympathy how lonesome the man must be. Then, with a secret laughter: *We'll fix that!*

Stepping forward, his flame-red cloak swirling from his shoulders, the Centaurian smiled. "Good day, captain. It's very kind of you to come. I've been looking forward to a talk with you."

"I can't stay long," said Langley.

Brannoch flashed a glance at the window. A fighting ship hovered just outside, rain sluicing off its flanks. There would be men posted everywhere, spy-beams, weapons in readiness. No use to try kidnaping this time. "Well, please sit down. Have a drink." Flopping his own huge form into a chair: "You're probably bored with silly questions about your period and how you like it here, I won't bother you that way. But I did want to ask you something about the planets you stopped at."

Langley's gaunt face tightened. "Look here," he said slowly. "the only reason I came was to try and get my friends away from you."

Brannoch shrugged. "I'm very sorry about that." His tone was gentle. "But you see, I haven't got them. I'll admit I wanted to, but somebody else got there first."

"If that isn't a lie, it'll do till one comes along," said the spaceman coldly.

Brannoch sipped his drink. "Look here, I can't prove it to you. I don't blame you for being suspicious. But why fasten the guilt on me particularly? There are others who were just as anxious. The Commercial Society, for instance."

"They—" Langley hesitated.

"I know. They picked you up a couple nights ago. News gets around. They must have sweet-talked you. How do you know they were telling the truth? Goltam Valti likes the devious approach. He likes to think of himself as a web-weaver, and he's not bad at it either."

Langley fixed him with tormented eyes. "Did you or did you not take those men?" he asked harshly.

"On my honor, I did not." Brannoch had no scruples when it came to diplomacy. "I had nothing to do with what happened that night."

"There were two groups involved. One was the Society. What was the other?"

"Possibly Valti's agents, too. It'd be helpful if you thought of him as a rescuer. Or . . . here's a possibility. Chanthavar himself staged that kidnaping. He wanted to try interrogation but keep you in reserve. When you escaped him, Valti's gang may have seized the chance. Or Valti

himself may be in Chanthavar's pay—or even, fantastic as it sounds, Chanthavar in Valti's. The permutations of bribery—" Brannoch smiled. "I imagine you got a good scolding when you returned to friend Channy."

"Yeah. I told him what to do with it, too. I've been pushed around long enough." Langley took a deep gulp of his drink.

"I'm looking into the affair," said Brannoch. "I have to know myself. So far, I've not been able to discover anything. It is not that there are no clues—but too many."

Langley's fingers twisted together. "Think I'll ever see those boys again?" he asked.

"It's hard to say. But don't set your hopes up, and don't accept any offers to trade their lives for your information."

"I won't . . . or wouldn't have . . . I think. There's too much at stake."

"No," murmured Brannoch. "I don't think you would."

He relaxed still further and drawled out the key question: "Do you know where Saris Hronna is?"

"No, I don't."

"Haven't you any ideas? Isn't there some probable place?"

"I don't know."

"You may be stalling, of course," said Brannoch. "I won't badger you about it. Just remember, I'm prepared to offer a very generous payment, protection, and transportation to the world of your choice, in return for that information. The world may

well be Earth herself . . . in a few years."

"So you do plan to attack her?"

Damn the fellow! Mind like a bulldog. Brannoch smiled easily. "You've heard about us from our enemies," he said. "I'll admit we aren't a sweet-tempered people. We're farmers, fishermen, miners, mechanics, the noble isn't very much different from the smallholder except in owning more land. Why don't you get a book about us from the library, strain out the propaganda, and see for yourself?"

"Ever since we got our independence, Sol has been trying to retake us. The Technon's idea is that only a unified civilization—under itself—should exist; everything else is too risky. Our notion is that all the cultures which have grown up have a right to their own ways of life, and to blazes with the risks. You can't unify man without destroying the variety and color which makes him worth having around—at least, you can't unify him under anything as deadening as a machine which does all his thinking for him."

"Sol is a menace to our self-respect. She's welcome to sit back and let her own arteries harden, but we don't want any part of it. When she tries to force it on us, we have to resist. Eventually, it probably will be necessary to destroy the Technon and occupy this system. Frankly, I don't think much will be lost. We could make those sheep down in low-level back into human beings."

We don't *want* to fight— Father knows there's enough to do in our own system—but it looks as if we'll have to."

"I've heard all the arguments before," said Langley. "They were current back around my own time. Too bad they haven't been settled yet, despite all the centuries."

"They never will be. Man is just naturally a rebel, a diversifier; there'll always be nonconformists and those who'd force conformity. You must admit, captain, that some of these eternal arguments are better than others."

"I . . . suppose so," Langley glanced up. "I can't help you anyway. Saris' hangout isn't known to me either."

"Well, I promised I wouldn't pester you. Relax, captain. You look like outworn applesauce. Have another drink."

The talk strayed for an hour, wandering over stars and planets. Brannoch exerted himself to charm, and thought he was succeeding.

"I've got to go," said Langley at last. "My nursemaids must be getting fretful."

"As you say. Come in again any time." Brannoch saw him to the door. "Oh, by the way. There'll be a present for you when you get back. I think you'll like it."

"Huh?" Langley stared at him.

"Not a bribe. No obligation. If you don't keep it, I won't be offended. But it occurred to me that all the people trying to use you as a tool never stopped to think that you



are a man." Brannoch clapped his shoulder. "So long. Good luck."

When he was gone, the Thorian whirled back toward his listeners. There was a flame in him. "Did you get it?" he snapped. "Did you catch any thoughts?"

There was a pause. Chanthavar didn't know, thought Brannoch half drunkenly, or he would never have let Langley come here. Even the Thorians hadn't realized for a long time that a Thryman was telepathic, and since discovering it they had been careful to keep the fact secret. Maybe . . . maybe—

"No," said the voice. "We could not read his mind at all."

"What?"

"It was gibberish. There was nothing recognizable. Now we must depend on your scheme."

Brannoch slumped into a chair. Briefly, he felt dismayed. Why? Had a slow accumulation of mutations altered the human brain that much? He didn't know; the Thrymans had never told anyone how their telepathy worked.

But— Well, Langley was still a man. There was still a chance. A very good chance, if I know men. Brannoch sighed gustily and tried to ease the tautness within himself.

X

The police escort dogged him all the way back. And there would be others in the throngs on the bridge-ways, hidden behind the blurring rain which tunneled off the trans-

parent coverings. No more peace, no more privacy. Unless he gave in, told what he really thought.

He'd have to, or before long his mind would be wrenched open and its knowledge pried out. So far, reflected Langley, he'd done a good job of dissimulation, of acting baffled. It wasn't too hard. He came from another civilization, and his nuances of tone and gesture and voice could not be interpreted by the most skilled psychologist today. Also, he'd always been a good poker player.

But who? Chanthavar, Brannoch, Valti—didn't Saris have any rights in the matter? They could all have been lying to him, there might not be a word of truth in any of their arguments. Maybe no one should have the new power, maybe it was best to burn Saris to ash with an energy beam and forget him.. But how could even that be done?

Langley shook his head. He had to decide, and fast. If he read a few of those oddly difficult books, learned something—just a little, just enough for a guess as to who could most be trusted. Or maybe he should cut cards. It wouldn't be any more senseless than the blind blundering fate which seemed to rule human destiny.

No . . . he had to live with himself, all the rest of his days.

He came out on the flange of the palace tower which held his apartment. (Only his. It was very big and lonely now, without Jim and Bob.) The hall bore him to a shaft, and he sped upward toward his own level. Four guards, unhuman-looking in the

stiff black fabric of combat armor, followed; but at least they'd stay outside his door.

Langley stopped to let it scan him. "Open, sesame," he said in a tired voice, and walked through. It closed behind him.

Then, for a little while, there was an explosion in his head, and he stood in a stinging darkness.

It lifted. He swayed on his feet, not moving, feeling the tears that ran down his face. "Peggy," he whispered.

She came toward him with the same long-legged, awkward grace he remembered. The plain white dress was belted to a slender waist, and ruddy hair fell to her shoulders. The eyes were big and green, there was gentleness on the wide mouth, her nose was tilted and there was a dusting of freckles across its bridge. When she was close, she stopped and bent the knee to him. He saw how the light slid over her burnished hair.

He reached out as if to touch her, but his hand wouldn't go all the way. Suddenly his teeth were clapping in his jaws, and there was a chill in his flesh. Blindly, he turned from her.

He beat his fists against the wall, hardly touching it, letting the forces that shuddered within him expend themselves in controlling muscles that wanted to batter down a world. It seemed like forever before he could face her again. She was still waiting.

"You're not Peggy," he said

through his tears. "It isn't you."

She did not understand the English, but must have caught his meaning. The voice was low, as Hers had been, but not quite the same. "Sir, I am called Marin. I was sent as a gift by the Lord Brannoch dhu Crombar. It will be my pleasure to serve you."

At least, thought Langley, Brannoch had enough brains to give her another name.

His heart, racing in its cage of ribs, began skipping beats, and he snapped after air. Slowly, he fumbled over to the service robot. "Give me a sedative," he said. "I want to remain conscious but calm." The voice was strange in his ears.

When he had gulped the liquid down, he felt a darkness rising. His hands tingled as warmth returned. The heart slowed, the lungs expanded, the sweating skin shivered and eased. There was a balance within him, as if his grief had aged many years.

He studied the girl, and she gave him a timid smile. No—not Peggy. The face and figure, yes, but no American woman had ever smiled in just that way, that particular curve of lips; she was a little taller, he saw, and did not walk like one born free, and the voice—

"Where did you come from?" he asked, vaguely amazed at the levelness in his tone. "Tell me about yourself."

"I am a Class Eight slave, sir," she answered, meekly but with no

self-consciousness about it. "We are bred for intelligent, pleasant companionship. My age is twenty. The Lord Brannoch purchased me a few days ago, had surgical alterations and psychological conditioning performed, and sent me here as a gift to you. I am yours to command, sir."

"Anything goes, eh?"

"Yes, sir." There was a small flicker of fear in her eyes, stories about perverted and sadistic owners must have run through the breeding and training centers; but he liked the game way she faced up to him.

"Never mind," he said. "You've nothing to worry about. You're to go back to the Lord Brannoch and tell him that he's just wrecked any chance he ever had of getting my coöperation."

She flushed, and her eyes filmed with tears. At least she had pride—well, of course Brannoch would have known Langley wasn't interested in a spiritless doll—It must have been an effort to control her reply: "Then you don't want me, sir?"

"Only to deliver that message. Get out."

She bowed and turned to go. Langley leaned against the wall, his fists knotted together. *O Peggy, Peggy!*

"Just a minute!" It was as if someone else had spoken. She stopped.

"Yes, sir?"

"Tell me . . . what'll happen to you now?"

"I don't know, sir. The Lord Brannoch may punish—" She shook

her head with a queer, stubborn honesty that did not fit a slave. But Peggy had been that way, too. "No, sir. He will realize I am not to blame. He may keep me for a while, or sell me to someone else. I don't know."

Langley felt a thickness in his throat.

"No." He smiled, it hurt his mouth. "I'm sorry. You . . . startled me. Don't go away. Sit down."

He found a chair for himself, and she curled slim legs beneath her to sit at his feet. He touched her head with great gentleness. "Do you know who I am?" he asked.

"Yes, sir. Lord Brannoch said you were a spaceman from very long ago who got lost and—I look like your wife, now. I suppose he used pictures to make the copy. He said he thought you'd like to have someone who looked like her."

"And what else? What were you supposed to do? Talk me into helping him? He wants my help in an important matter."

"No, sir." She met his eyes steadily. "I was only to obey your wishes. It—" A tiny frown creased her brow, so much like Peggy's that Langley felt his heart crack within him. "It may be he was relying on your gratitude."

"Fat chance!" Langley tried to think. It wasn't like Brannoch, who must be a cynical realist, to assume that this would make the spaceman come slobbering to him. Or was it? Some traits of human nature had changed with the change in all so-

ciety. Maybe a present-day Earthman would react like that.

"Do you expect me to feel obligated to him?" he asked slowly.

"No, sir. Why should you? I'm not a very expensive gift."

Langley wished for his old pipe. He'd have to have some tobacco cut for it special one of these days, he thought vaguely; nobody smoked pipes any more. He stroked her bronze hair with a hand which the drug had again made steady.

"Tell me something about yourself, Marin," he said. "What sort of life did you lead?"

She described it, competently, without resentment and not without humor. The center didn't meet any of Langley's preconceived notions; far from being a hole of lust, it sounded like a rather easy-going institution. There had been woods and fields to stroll in between the walls, there had been an excellent education, there had been no attempt—except for conditioning to acceptance of being property—to prevent each personality from growing its own way. But of course, those girls were meant for high-class concubines.

With the detachment lent him by the sedative, Langley perceived that Marin could be very useful to him. He asked her a few questions about history and current events, and she gave him intelligent answers. Maybe her knowledge could help him decide what to do.

"Marin," he asked dreamily, "have you ever ridden a horse?"

"No, sir. I can pilot a car or flier, but I was never on an animal. It would be fun to try." She smiled, completely at ease now.

"Look," he said, "drop that superior pronoun and stop calling me 'sir.' My name's Edward—plain Ed."

"Yes, sir . . . Edwy." She frowned with a childlike seriousness. "I'll try to remember. Excuse me if I forget. And in public, it would be better to stay by the usual rules."

"O. K. Now—" Langley couldn't face the clear eyes, he stared out at the rain instead. "Would you like to be free?"

"Sir?"

"Ed! I suppose I can manumit you. Wouldn't you like to be a free agent?"

"It's . . . very kind of you," she replied slowly. "But—"

"Well?"

"But what could I do? I'd have to go to low-level, become a Commoner's wife or a servant or a prostitute. There isn't any other choice."

"Nice system. Up here, you're at least protected, and among your intellectual equals. O. K., it was just a thought. Consider yourself part of the furniture."

She chuckled. "You're . . . nice," she said. "I was very lucky."

"Like hell you were. Look, I'm going to keep you around because I haven't the heart to turn you out. But there may well be danger. I'm right in the middle of an interstellar poker game and—I'll try to get you out from under if things go sour, but I may not be able to. Tell me

honestly, can you face the prospect of getting killed or . . . or anything?"

"Yes, Edwy. That is of the essence of my training. We cannot know our future—so we must learn the courage to accept it."

"I wish you wouldn't talk that way," he said gloomily. "But I suppose you can't help it. People may still be the same underneath, but they think different on top. Well—"

"What is your danger, Edwy? Can I help?" She laid a hand on his knee, it was a slim hand but with strong blunt fingers like—"I want to, I really do."

"Uh-huh." He shook his head. "I'm not going to tell you more than I must, because if people realize you know anything you'll become a poker chip, too." He had to use the English phrase, only chess had survived of the games he knew, but she got the idea. "And don't try to deduce things, either. I tell you, it's dangerous."

There was no calculation in the way she got up and leaned over him and brushed his cheek with one hand. "I'm sorry," she whispered. "It must be dreadful for you."

"I'll survive. Let's continue the roundup. I mean you well, but right now I'm under a sedative. It was a shock seeing you, and it's going to go on being a shock for a while. Keep in the background, Marin; duck for cover if I start throwing things. Don't try to be sympathetic, just let me alone. Savvy?"

She nodded mutely.

In spite of the drug, his voice

roughened. There was still a knife in him. "You can sleep in that room there."

"All right," she said quietly. "I understand. If you change your mind, I'll understand that, too." After a moment: "You could have my appearance altered again, you know."

He didn't reply, but sat wondering. It was the logical answer—No. He would always remember. He didn't believe in hiding from a fact.

The door chimed and said: "Minister Chanthavar Tang vo Lurin wishes to see you, sir." The scanner screen flashed an image of the agent's face; it was taut and cold with a choked anger.

"All right. Send him in." Marin went into another room. Langley did not rise as Chanthavar entered, and sat waiting for the other to speak first.

"You saw Brannoch today."

Langley raised his brows. The coolness was still on him, but it only made his stiff-necked resentment more controlled. "Is that illegal?" he asked.

"What did he want of you?"

"What do you think? The same as Valti and you and everybody else wants. I told him no, because I haven't anything to give."

Chanthavar's sleek dark head cocked forward. "Haven't you?" he snapped. "I wonder! I wonder very much. So far my superiors have kept me from opening your mind. They claim that if you don't know, if you really haven't figured it out, the pro-

cedure will keep you from ever doing so. It's not a pleasant experience. You won't be quite the same man afterward."

"Go ahead," challenged Langley. "I can't stop you."

"If I had time to argue my chiefs down, I would," said Chanthavar bluntly. "But everything's happening at once. A munitions plant on Venus was blown up today. I'm on the track of a ring which is trying to stir up the Commons and arm them. It's—Brannoch's work, of course. He's gambling his whole organization, just to keep me too busy to find Saris. Which suggests he has reason to believe Saris can be found."

"I tell you, I've thought about it till I'm blue in the face, and . . . I . . . don't . . . know." Langley met the wrathful black eyes with a hard gray stare. "Don't you think I'm smart enough to save myself a lot of trouble? If I did know, I'd tell somebody or other, I wouldn't horse around this way."

"That may be," said Chanthavar grimly. "Nevertheless, I warn you that if you haven't offered some logical suggestion within another couple of days, I'll take it on myself to have you interrogated. The hunt's going on, but we can't scour every nook and cranny of a whole world—especially with so many powerful Ministers fussy about having their private estates searched. But Saris will be found if I have to rip the planet apart—and you with it."

"I'll do my best," said Langley. "This is my planet too, you know."

"All right, I'll settle for that, but *very* temporarily. Now, one other thing. My watchers report a female slave was sent you by Brannoch. I want to see her."

"Look here—"

"Shut up. Fetch her out."

Marin entered of herself. She bowed to Chanthavar and then stood quietly under the rake of his eyes. There was a long stillness.

"So," whispered the agent. "I think I see. Langley, what are your reactions to this? Do you want to keep her?"

"I do. If you won't agree, I'll guarantee to do my best to see you never find Saris. But I'm not going to swap a whole civilization just for her, if that's what you're thinking."

"No . . . it isn't. I'm not afraid of that." Chanthavar stood with feet wide apart, hands clasped behind his back, scowling at the floor. "I wonder what his idea really is? Some of his own brand of humor? I don't know. I'll have her guarded, too."

He was silent for a while. Langley wondered what was going on inside that round skull. And then he looked up with elfish merriment in his eyes.

"Never mind!" said Chanthavar. "I just thought of a joke. Sit back and do some hard thinking, captain. I've got to go now. Good day to you both—enjoy yourselves." He bowed crisply and went out.

(TO BE CONTINUED)



THE REFERENCE LIBRARY

BY P. SCHUYLER MILLER

FOR YOUR POCKET

One of the publishing phenomena of the last few years has been the rise of the paper-bound "pocket" books. For reasons which are neither here nor there, we've more or less ignored them in the past. However, the advent of Ballantine's parallel series of science-fiction originals, published simultaneously in paper and hard covers, has made this policy rather ridiculous, and we'll try to do justice to the pocket s-f from here in—though in the case of reprints of previously published books, a notice should be enough. Having broken the ice, I want to sum up the pocket-book situation for 1954 and start clean from there.

Let it be said that the economics

of the pocket-books have far from shaken down. They came into being for the same reason that popular magazines did, and for the same reason that they have before, here and throughout the world. Cheaper paper and binding, plus a relatively enormous print order, brings the cost per book down to the level of a magazine. Reprint rights for previously published material, and royalty rates for new stuff, are lower than for most regular hard-bound books in recognition of the fact that if the larger edition sells out, the writer stands to gain more. To offset this, the paper-back publisher gets no income from advertising—as most national magazines do, but the science-fiction field do not to any extent. And he has to distribute his books

as if they were magazines, through drugstores, newsstands, or whatever media the magazine distributors use. But with a difference—

The difference is that *Life* and the *Saturday Evening Post* go out of date in a week; *Astounding* in a month; some of the quarterly competition in three months—whereas a book, paper-backed or cloth-bound, is theoretically good forever. And that's been a mighty hard thing to put across to the distributors and to the man with a few shelves in the corner of his drugstore. With new titles coming out at terrific speed, he can't—physically—keep and display them all. It would be nice if he could sell them as fast as they came in, but that just doesn't happen. What does he do? Ship back a carton of old titles whenever a box of new ones comes in. And does he do it with discrimination, culling out the trash and keeping the pure gold? Are you nuts? His time is worth too much for that—and chances are the trash sells better, if it has a busty, bloody cover.

The result has been that pocket-books, except in a few rare stores in the larger cities—or, interestingly enough, in the smaller places where rentals aren't so high and a newsstand can afford to display more books and magazines, while people can't get books as easily—are not treated like books at all. If you don't catch a title while it's new, you may never see it. And of late, publishers have been complaining that the distributor—the wholesaler

who gets the pocket-books for an entire city or region, direct from the publisher or a central jobber, and passes them on to the local retailer—these distributors haven't even bothered to unpack the cartons of new titles as they arrive. They leave the box in a corner for a month or a couple of weeks, then ship it right back, unopened. Result: old titles stay in the store longer, but new titles may never get to the shelf at all.

The *Wall Street Journal*—according to Random House's Bennett Cerf—recently editorialized on the over-production of paper-backs. They're being dumped into canals or shredded into waste paper, because it's too costly to store them. Royalties—and especially advance payments to authors and original publishers—are being cut back. Yet sales are edging a quarter of a *billion* copies a year, which is probably more than all hard-bound books put together—and fifty million in excess of sales.

Meanwhile it's being proven again and again that selectivity is the answer. The older PB publishers are continuing to put out novels and nonfiction of solid literary quality. Penguin Books, the pioneering British publisher—who now has an American outlet, and who previously launched what is now the Signet-Mentor house—has a series of original books in archeology which rank—at 75¢ to 95¢ a copy—with university press titles at \$10 to \$30 per volume. Several publishers are trying their hand at "high brow" reprints

of literary classics, on book paper, at around 95¢—books you'll want to keep, as Europeans long have kept their PBs.

I have, spread out in a four-foot line on the floor, fifty-eight pocket-book editions of science fiction and fantasy which were distributed in 1954. This includes one French title which happened to reach me, but none of the British books, which I understand are many, and none from other countries. They range from thin reprints of novels to very, very fat anthologies, and they include an increasing number of original books—both first reprints from magazines, and *real* originals, written for first publication as paper-backs. But before trying to sum up the year, let's have another look at what you get in a pocket-book.

Prices for about half of these are 25¢; the rest, and all the fatter titles, are 35¢, which makes them more or less direct counterparts of this and other science-fiction magazines. Most of them have a format which gives you about three hundred fifty words per page: Ace gets that up to about four hundred fifty, Pennant, Ballantine and Gold Medal to around four hundred, and Signet, by using amazingly readable type, to four hundred eighty. The number of pages, as you might expect, varies all over the place—but the average novel seems to give you around sixty-four thousand words for your 35¢. From there it ranges up to one hundred thirty-seven thousand words in a typical

Ace "double" selection—two novels, back to back—and to one hundred sixty-eight thousand in one fat Pocket Book reprint of an excellent short story anthology.

Forgetting these oversize editions, and concentrating on the run-of-the-mill titles, it turns out that when you count words and pages for the leading four or five science-fiction magazines, you are getting forty to fifty per cent more solid wordage in an issue of *Astounding*, and around fourteen per cent more in the three nearest current contenders, than you do in an average pocket-book. This includes articles, editorials and departments; it excludes table of contents and advertisements. It does not allow any deduction for illustrations, because I consider them worth as much or more than the wordage they replace: and you *don't* get 'em in most PBs.

In any of the best science-fiction magazines, then, you get *more* solid wordage for your money than in the average pocket-book of the same price—though some of the best cost less. In addition you get articles, book news, illustrations, editorials, plus the readers' discussions. You get the balance that a good editor gives his magazine—variety in type and style, variety in length. You get a cover painting that's as good as most paper-backs can offer, and better than a good many.

No magazine need apologize to readers because it isn't a pocket-book. Especially, may I say, this magazine!

Nor should the PBs apologize for

not being magazines. They give you selectivity in place of variety, and for that reason the pocket-book science fiction has until recently been largely limited to paper-backed editions of popular cloth-bound books. In 1954 we were getting more *original* books, both novels and short story anthologies.

Six of the eleven anthologies published in 1954—including the French "Escales dans l'Infini" from Librairie Hachette of Paris—were originals and nearly all of them rated hard-cover editions. Ballantine gave us the third "Star Science Fiction Stories" and the first "Star Short Novels," both edited by Frederik Pohl, which were for good measure collections of brand-new stories; I've described them here. Dell opened the year with Groff Conklin's choice of "6 Great Short Novels of Science Fiction" which were all you'd expect of a Conklin selection. Lion Books got Judith Merril's excellent "Human?" which fortunately appeared recently enough to get regular mention. And Donald Wollheim edited an Ace "double book" composed of five "Tales of Outer Space" and five "Adventures in the Far Future," which is the best Wollheim anthology in a long time, if not up to those we've just mentioned. For good measure, half of another double, "The Ultimate Invader," contains four novelettes dealing with time in its various aspects.

These Ace doubles are by long odds your biggest money's worth in sheer wordage, and they do pretty

well in quality, too. Their "gimmick" is that each consists of two books, one printed upside down and back-to-front with respect to the other. One is usually a reprint of a hard-cover book: in 1954, we've had Asimov's "The Rebellious Stars" ("The Stars, Like Dust"); Simak's "Ring Around the Sun"; van Vogt's "Weapon Shops of Isher"; Andre Norton's "Daybreak—2250 A.D." (originally "Star Man's Son"); and Bellamy's "Atta." Paired with these were first PB editions of serials or single-shot novels from the magazines. In the order given above, these were: Roger Dee's "An Earth Gone Mad"; de Camp's "Cosmic Man-hunt" (otherwise "The Queen of Zamba" when it was here); Leinster's "Gateway to Elsewhere"; a Padgett-Moore, "Beyond Earth's Gates"; another Leinster in "The Brain Stealers"; and to match "The Ultimate Invader," Eric Frank Russell's "Sentinels of Space." As you'll notice, these are for the most part middle-of-the-road plot-color-and-action yarns.

Having been sidetracked by the Ace books, we can return to the anthologies to note that the year also saw reprints of hard-cover anthologies in a selection of eight of the best ASF yarns from the old Healy-McComas "Adventures in Time and Space" (*Pennant*); twelve from the Margulies-Friend collection, "My Best Science Fiction Story" (*Pocket Books*); and all twenty-one stories in the excellent

William Tenn selection, "Children of Wonder," retitled "Outsiders: Children of Wonder" by Perma Books. Pennant also gave us twelve of the stories in Judith Merril's "Beyond Human Ken."

The French anthology is, I believe, the first short story collection in Hachette's series, "Le Rayon Fantastique," which had previously been limited to novels. It is edited by Georges Gallet (and apparently translated by him): he is perhaps the top French student of science fiction, and has chosen ten stories which range over both science fiction and fantasy.

In addition to the Ballantine series of original science-fiction novels, which have been reviewed here as I got them (Pohl and Kornbluth's "Search the Sky," Crane's "Hero's Walk," Anderson's "Brain Wave," Oliver's "Shadows in the Sun," and Siodmak's "Riders to the Stars") the year brought an outstanding original novel in Richard Matheson's "I Am Legend," from Gold Medal, which has also distinguished itself for top-notch original mysteries. There was also Kendell F. Crossen's good "Year of Consent," another Dell First Edition. Original short story collections by one author included Kornbluth's excellent "The Explorers" from Ballantine, and new assortments of stories which, unless I am mistaken, came from other previously published books: Lewis Padgett's "Line to Tomorrow" (Bantam) and Nelson Bond's "No Time Like the Future" (Avon, otherwise unusually quiet in

'54). Frankly, the Padgett and Bond stories have been anthologized so often, in so many books, that without an elaborate cross-index—which I don't and won't have—I don't know which are re-prints and which are new to book form in these collections.

As might be expected, much of the best PB science fiction in 1954 came from magazine serials and prior hard-cover publication. Oldest of the lot was Perma's edition of A. Conan Doyle's classic "The Lost World." Ballantine had the edge with Duncan's "Dark Dominion," Clarke's "Prelude to Space," and a paper edition of Gore Vidal's "Messiah," plus Sheckley's shorts in "Untouched By Human Hands." Signet's top title of the year was Alfred Bester's "The Demolished Man," but it also had Tucker's "Time Masters" and Heinlein's four novelettes in "Assignment in Eternity," while Dell published Tucker's "The Long Loud Silence," plus Cyril Judd's "Outpost Mars" and the Robert Spencer Carr shorts, "Beyond Infinity." Perma had Simak's "City" and Clarke's "Against the Fall of Night" and Pocket Books had his "Sands of Mars," the unusual Vercors "You Shall Know Them," and a minor Leinster, "Space Tug."

Lion, hitherto a minor PB publisher whose books frequently don't get space on the stands, had two good titles in Fritz Leiber's "Green Millennium" and Steve Frazee's suspense-adventure yarn, "The Sky Block," both from original hard-

cover books which haven't been serialized. Bantam gave us two other top-notchers in Fredric Brown's "The Lights in the Sky are Stars" and Kurt Vonnegut's "Player Piano," renamed "Utopia 14." Pennant had Jerry Sohl's "Altered Ego," and Ace had one of its occasional single titles, direct from magazine publication, in L. Ron Hubbard's "Return to Tomorrow" (published here in 1950 as, I think, "To the Stars."))

I'd advise you to watch for popular science titles among the pocket-books. I have only three in my count of fifty-eight, but there were certainly more worth noting. Those I picked up were a Signet edition of Leonard's "Flight Into Space," a Mentor of Hoyle's "Nature of the Universe," and a Pocket Books edition of Clarke's "Exploration of Space."

Outright fantasy didn't do very well in '54. Outstanding PB of the year was a Cardinal edition of the complete "Great Tales of Fantasy and Imagination" edited by Philip van Doren Stern (originally "The Moonlight Traveler"). No one should miss it. Lion brought out Leiber's classic "Conjure Wife" and Michael Fessier's light "Fully Dressed and in His Right Mind." Dell had Henry James' masterpiece, "The Turn of the Screw," with his non-fantasy "Daisy Miller." And Bantam gave us John Dickson Carr's classic combination of detection and the supernatural, "The Burning Court," which you should certainly read if you missed it back in 1937.

There were also new PB editions of several books which were first published as paper-backs some time ago, went out of print, and are back again with new covers. Bradbury's "Martian Chronicles" is one of several that I won't try to list. And having, in a sense, caught up with this survey of a year's publishing in the pocket-book field, I promise not to do it again, but to try to bring you the *original* PB editions as I get them, and notice the reprints in passing.



THE SCIENCE-FICTION SUBTREASURY, by Wilson Tucker. Rinehart & Co., New York. 1954. 240 pp. \$2.75.

Here is a minor collection of ten short stories by one of the most consistently good novelists in the science-fiction field. As their author says in his introduction, they are not intended to be representative of anything except the good time you can have playing with ideas in science-fiction: they are "dedicated to the proposition that very little in science fiction is sacred."

The ten stories have been drawn from seven different magazines. The best, "MCMLX" (in which a science-fiction writer has a very useful—and troublesome—encyclopedia), seems to be an original written for the book. Next in line, to me, is "Gentlemen—the Queen," which follows the logic of a romantic situation to

its bitter end. The longest, "The Job Is Ended," was evidently a trial run in novelette form for Tucker's much better novel (now out in a Signet 25¢ edition), "The Time Masters." The opener, "The Street Walker," develops a theme much like that of Bradbury's "Pedestrian" in a purely Tuckeresque way.

The others: "Home Is Where the Wreck Is," a comedy on the lines of a reverse "Admirable Crichton"; "My Brother's Wife," a ghoulish little family-circle tale; "Exit," in which a philosopher talks too much; "The Wayfaring Strangers" who pop up in poor old Charley Horne's back yard and another "shaggy dog" story about visiting aliens, "The Mountaineer"; and that other admirable yarn about the struggles of Mr. Horace Reid to eradicate anachronisms from our times, "Able to Zebra." (How about Kim Novak as Dog? I'll bet Author Tucker would lean way out of his projectionist's booth and applaud.)



THE BEST FROM FANTASY AND SCIENCE FICTION: FOURTH SERIES, edited by Anthony Boucher. Doubleday & Co., Garden City. 1955. 250 pp. \$3.50.

These annual collections should need no introduction. Even if you don't like fantasy—five out of fifteen stories—you are certain to find some of the year's best science fiction. I have a hunch Anthony Boucher—

now operating without McComas—has to fight hard to keep some of these stories away from Bleiler and Dikty. This year's lot, by the way, is embellished with some of the verse which has been cropping up in *F&SF* lately: notably, Isaac Asimov's "Foundation of Science Fiction Success."

Best of the science fiction in the book are Robert Abernathy's picture of ancient cultural patterns emerging in a Russia devastated by World War III ("Heirs Apparent"); Richard Matheson's "The Test," in which the problem of our aging population is played out bitterly, Ray Bradbury's "All Summer in a Day," another of his vignettes of children's cruelty; Daniel F. Galouye's "Sanctuary," a moving story of a tortured telepath, and I guess Shirley Jackson's scrap of paper from the future, "Bulletin."

Right up in there, and I'd hate to have to justify putting them on the next-to-the-top step of the ladder, are Alfred Bester's story of android insanity, "Fondly Fahrenheit"; J. Francis McComas' story of a primitive innovator, "Brave New World"; and Albert Compton Friborg's "Careless Love," or the romance of a computer. Step three from the top—and it's a tall ladder—Poul Anderson's *tour de force* of chess, "The Immortal Game," and Lord Dunsany's "Misadventure" in an intelligent lift.

At the top of the fantasy section are Robert Sheckley's "Accountant," which must surely have starred in *Unknown* were that lamented maga-

zine still with us, and another of Manly Wade Wellman's distinguished series about wandering John, his guitar, and his strange experiences with the legendry of the southern hills: "The Little Black Train." Arthur Porges, in "\$1.98," gives us an item which might have come from Dunsany, and C. M. Kornbluth has a riotous tale about a tough slum kid paroled to magic, "I Never Ast No Favors," which also belongs up there at the top. Finally, in "My Boy Friend's Name is Jello," Avram Davidson has a neatly understated vista of witchcraft among the tenements.

"No BEMs," Tony Boucher advertises on his jacket: it's an oversight. He hires only the *best* BEMs.



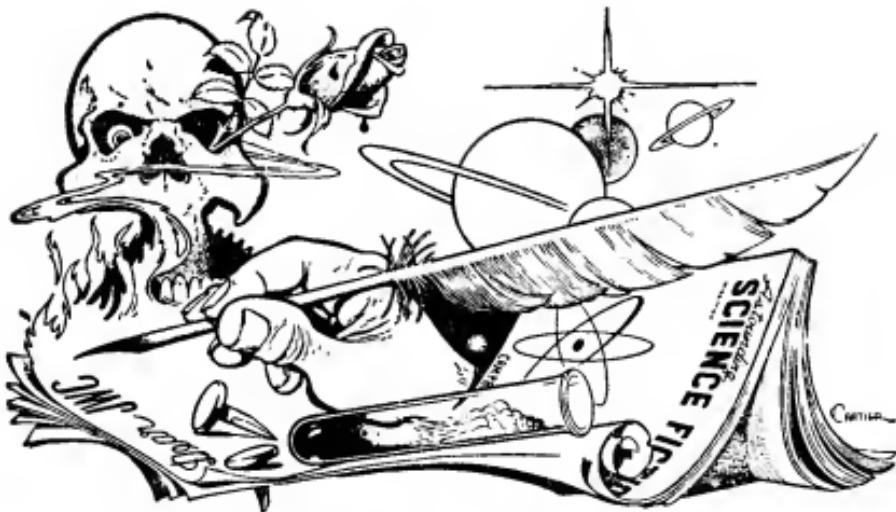
SHADOWS IN THE SUN, by Chad Oliver. Ballantine Books, New York. 1954. 152 pp. \$2.00; paper 35¢.

Here is Ballantine's top book of 1954, and a probable contender in the International Fantasy Awards for the year (though I am still rooting for Pangborn's "Mirror for Observers" as *the* best). It shows Chad Oliver's study of anthropology sink-

ing into his thinking and writing, and I'm inclined to say that it's the best science-fiction with an anthropological theme that I have seen.

Paul Ellery is studying the cultural and social structure of a small Texas town, Jefferson Springs. He finds that its entire population seems to have been replaced, over a period of years, by aliens . . . and then the "secret" is laid open for him, and his and the book's real problem is stated. Men, "real" men, people the stars and their higher civilization is pressed for room into which to expand. Their solution is to colonize the underdeveloped worlds like Earth, to take over the country towns and let our kind retreat to natural "reservations" in the cities where, in the end, their superior culture will be able to preserve us in happy co-existence. The gulf between "savages" and civilized is not one of evolution or intelligence, it is purely and simply cultural, and Paul can be taught to take a place in the society of the outsiders. Should he, and will he? (It is almost exactly the problem of Jack Williamson's "The Humanoids" that Paul Ellery faces.)

I hope we can expect more and even better books from Chad Oliver as he moves into an anthropological career.



BRASS TACKS

Dear Mr. Campbell:

The 13th World Science-Fiction Convention will be held in Cleveland, Ohio over Labor Day week-end, September 2, 3, 4, and 5, 1955.

Because of space limitations, we cannot give an itemized account of what we have already planned, but here is a brief resumé.

1. Convention headquarters will be the Hotel Manger in the heart of downtown Cleveland. This hotel has been re-decorated in the most modern manner, guaranteeing the most pleasant accommodations. Rooms run from as low as \$5.00 for a single to a maximum of \$9.00 for a double and \$12.00 for one with twin beds.

2. The convention guest of honor will be Isaac Asimov, brilliant author of the "Foundation" stories, many

other books and hundreds of short stories and articles. Dr. Asimov is also one of the wittiest speakers we have encountered in the science-fiction field.

3. We are considering presenting a science-fiction play to be produced by one of Cleveland's outstanding semi-professional theater groups.

4. There will be three or possibly four panel discussions, one of which will be a formal debate. Some of the personalities that have said they would attend are Mark Clifton, James E. Gunn, Anthony Boucher, John W. Campbell, Jr., Bob Tucker, Lloyd Eshbach, Willy Ley, Forrest Ackerman, Betsy Curtis, E. E. Evans, and Evelyn Gold.

5. We will have the annual Masquerade ball with a "name band"

and a competition for the best costumes with art work for prizes, and of course, the auction.

6. We are also planning to reinstate the Achievement Awards instituted by the 11th World Science-Fiction Convention in Philadelphia and inaugurating a Mystery Guest contest, however, the particulars will be found in all Progress Reports.

For more information, please write to us for the "Special Issue Progress Report" which contains all the necessary information on the convention in detail. Or, if you prefer, send your \$2.00 registration fee to 13th Annual World Science-Fiction Convention, P.O. Box 508, Edgewater Branch, Cleveland 7, Ohio.—Noreen Kane Falasca, Chairman.

Making plans for Labor Day yet?

Dear Mr. Campbell:

The picture of solar system astrodynamics and its attendant logistics seems to be settling into focus now like the surface of a lake near the termination of a wild storm—as seen from inside the lake. Each step in the direction of quantitative analysis has seemed to bring about large qualitative revisions in our ideas of space travel and what possible excuses we could find for engaging in it—or what possible means. Arthur C. Clarke in the November *Journal of the British Interplanetary Society* has needled a number of "Astronautical Fallacies" in a concise manner pleasing to many of us, I'm sure,

who've been exasperated to find otherwise esteemed friends mired deep beyond momentary aid in these mental sandtraps.

He also manages to set up a falacy or two of his own, at least on the verbal level, but such are the times and their velocity that J. J. Coupling spears them in turn in the January *Astounding* while my jaw is still slack. For instance, this: "There are no circumstances, in fact, where making such a rendezvous (spaceship matching velocity and position with an asteroid with the intent of interplanetary hitch-hiking) would have any effect except that of increasing fuel consumption and adding to the hazards of the voyage. Even if there was any advantage in such a scheme, one might have to wait several hundred years before there was a chance for a return trip. No, interplanetary hitch-hiking will not work . . ."

Those little dots which Mr. Clarke places at the end of his paragraph are the mathematical symbol for the truncated or infinite portion of an infinite series and I presume that, with tongue in cheek, he intends them to have that significance.

"Any advantage in such a scheme" is tied up in the single factor of "reaction mass," to which, even after Ley and von Braun and Kooy & Uytenbogaart, we are paying insufficient attention, and to which Coupling brings precise and correct attention on page 123: ". . . space travel . . . has several elements: . . . (4) A trip to the vicinity of some

light satellite, asteroid or ring (of Saturn). (5) Picking up reaction mass . . ."

Every bit of matter floating about in the universe, and—in the case of this century's interest—in the solar system, from comet-size—a few hundred million tons each—upward through asteroids and moons to the planets, is a space "filling station" for reaction-mass.

For analogy, in order to emphasize the importance of this factor, imagine touring across the United States in your car—that second Ford in the family—with fourteen tanker trucks and their drivers tagging along behind as your fuel supply—**AND AS THEIR OWN FUEL SUPPLY**. But no filling stations—they died of filling station pox or other gimmicks to wit—Well, that trip is going to cost you a lot more for gas than it would if there were filling stations, and a lot more for capital invest-

ment, personnel, hamburgers, etcetera.

Read reaction mass, capital, robots and uranium for fuel, personnel and hamburgers and the problem's yours. For tanker trucks, read rocket stages. Oh—and multiply costs by about 10^3 !

If any Terran government—national or planetary—ever gets big and bold enough to establish uranium-and/or-solar-powered reaction-mass refineries on the moons of the solar system, the individual trader's most economical trip, from Earth-surface to Saturn-surface—for a nice example—will, in my present qualitative estimate, follow Coupling's dicta closely: Earth to 1075-mile satellite vehicle on reaction-mass obtained from Earth; then vehicle to Luna on reaction-mass originating on Luna and transported—earlier than date of need—to and stored at vehicle; then:

FROM	TO	SOURCE OF REACTION MASS
Luna	Deimos	Luna
Deimos	a belt asteroid Ceres, Vesta, etc.)	Deimos
Ceres	J9 or a Trojan planet	Ceres
Trojan asteroid	Phoebe	Trojan
Phoebe	Iapetus	Phoebe
Iapetus	Hyperion	Iapetus
Hyperion	Titan	Hyperion
Titan	Rhea	Titan
Rhea	Dione	Rhea
Dione	Tethys	Dione
Tethys	Enceladus	Tethys
Enceladus	Mimas	Enceladus
Mimas	Outer Ring	Mimas
Outer Ring	Bright Ring	Outer Ring
Bright Ring	Crape Ring	Bright Ring
Crape Ring	Outer Saturn Satellite Vehicle	Crape Ring
Outer Saturn S. V.	Intermediate S. S. V.'s	Crape Ring
Intermediate S. S. V.'s	Saturn Exosphere Vehicle	Crape Ring
Saturn Ex-Vehicle	Floating Base on Saturn Ocean	Crape Ring

hi!

Any moment, now, it will happen... a little hand reaching... a puppy-tail wagging... and suddenly a boy and his new dog will be tumbling together in the beginning of love.

Here, in such a moment, out of the heart's deep need for love begins the reaching for security that all of us need all our lives.

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This list is slightly more subtle than a mere tabulation, although not difficult in the continued light of the tourist-and-gas-stations analogy:

1. No mention has been made of possible satellite vehicles around Luna, Ceres, Titan as cheaper remassing stations than the surfaces of the bodies themselves—which would however remain the SOURCES of the remassing-mass—because this is a quantitative matter that I've not gone into.
2. Stopping at both 1075MSV and Luna is superior to stopping at only one of them in the hard fight against Terran gravity—and this is clearly indicated if not absolutely proven by the tourist-and-gasoline analogy to which the interested scholar is heartily referred, along with his desk calculators, minute stipendia et aliqui.
3. Phobos and Mars are omitted because they are situated at the same crossroads as Deimos and yet charge somewhat and much (respectively) more for their gasoline—I mean their grav fields rob you of more of your hard-purchased reaction-mass before you can get under way again.
4. Any asteroid in the main belt will do. They're all low-grav fields of small extent. Plenty of cheap gas. Heart of the oil country. Don't have to watch your timing too close either.
5. A leading Trojan planet ("Jupiter Equilateral"), J9 or a lagging Trojan, depending upon the timing of the individual voyage. A Trojan is superior to J9 because there's less perturbation from Jupiter (oh, Lawden! why'd you ever bring THAT up?) and less Jovian grav to fight on the ways in and out, and J9 superior to the other Jovian moons for the same reason. I hope it is obvious to sundry as well as all that we are *not* stopping at Jupiter to pick up reaction mass on a Terra-Saturn . . . er . . . "run."
6. The reason for "climbing down" from Saturn's outer moon Phoebe along the entire ladder of moons, rings and a number of fictitious satellite vehicles, is not the INTENSITY of Saturn's grav field but its EXTENT—or, rather, the product INTENSITY x EXTENT and the exponential effect of EXTENT upon required reaction-mass, the number of rocket stages and the mass-ratio.

To elaborate upon this last point: Saturn has very little more theoretical (i.e.: cirro-stratus-level) "surface" gravity than Earth: about 1.17 to 1.23 "g" is the present estimate. So far as *intensity* goes, we would not expect to have to add even a fourth stage to the three-stage Earth-escaping rocket to make a Saturn-escaping rocket of it. However, Saturn's mass is ninety-five times Earth's, and escape from or surfacing upon that planet without benefit of remassing stations would require, using Coupling's excellent data, a mass-ratio of 4117, of six of von Braun's mass-ratio-four stages.

That's 4117 just between Saturn and Space, which means 4117 tons of fuel to lift 1 ton of payload off Saturn into Space in an orbit not too much different from Saturn's orbit about Sol. Earth's escape mass ratio is given by Coupling as 57, so the Earth-Saturn mass ratio, one way, ignoring velocity-matching-energy, is 57 times 4117, and the mass ratio for a round-trip is the square of that product. But we cannot ignore velocity-matching, and the mass-ratios for velocity-matching will be multiplied by the above mentioned square of 57×4117 . Putting remassing-stations on all convenient bodies along the way cuts down this chain of multiplications (tending ideally towards converting it into a chain of mere additions instead). 'Nuff said.—Alan F. Wilson, 333 Clay Street, Los Angeles 13, California.

P.S.:

With a planet of very high equatorial velocity, somewhat above the Keplerian circular-orbit velocity for a distance of one planetary radius from center, there are critical equatorial velocities which we might wish the planet possessed to match the Hohmann ellipse connecting the planet's equator with the orbit of each of its moons. If the equator has the critical velocity to match the Hohmann orbit to the outermost moon, then no energy need be expended (and the engines may remain OFF) during landing upon and taking off from the planet—at the equator—and the planet will possess two parallels of latitude (one North

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and one South) for each of the other moons such that the velocity of a parallel matches the Hohmann orbit to the corresponding moon. Some energy will have to be expended in the latter cases to compensate for the motion of the rocket in latitude. At the moment of no-energy or low-energy surfacing on such a planet you would have to "grab a hold" fast, like the daring young man on the flying trapeze or you'd be headed for space again. In such a case, I think you'd want jets in the roof (no remarks please) to hammer the ship down onto the ground until you got an eyebolt screwed securely into the lithosphere. That would be a jittery moment with an UNPLANNED TRIP into space again hovering over your neck like the Sword of Damocles . . . I mean, like a boomerang.

Needless to say, such a planet would be even more bizarre than Mesklin in that while it might possess a heavy polar atmosphere (I should say: TWO heavy polar atmospheres) it could not contain either a tropical atmosphere or a tropical ocean. It will be interesting in mortal futurity to determine if there are any likely lithospheric materials having sufficient solid-state shrinkage to allow a planetary equator to exceed Keplerian velocity in the slow geological (planetological) ages of a world's cooling.

Deep metal-mining and export should be a breeze in such Tropics, but the 'quakes if any would be perilous indeed, and any vulcanism would lead to pillars of fire that

would drain the planet like a racoon sucking an egg—until sub-Keplerian dynamic stability is reached that is. And we're pretty certain now that radioactive heating can lead to local liquefactions in a lithosphere after it has solidified.

Speaking of Mesklin, I think that big old world will go down into the legends of the future as Ilium and Ithaca have come down into ours. Really Homeric. Even Simakian.

a.w.

Hitch-biking on an asteroid does make much sense in these terms!

Dear Mr. Campbell:

Your article a while back by Poul Anderson, "Those Hairy Ancestors" did a fine job of debunking some of the current myths on early man. Of course, the actual basic data is so limited that much controversy exists on various points. This, I think, is due more to the attempts to use anthropology to defend some preconceived idea—in one of its worst cases, the attempt of certain Argentine scientists to find man's origin on the Argentine pampas to support their brand of nationalism—than to ambiguities in the basic evidences. Sciences which are not closely related to prejudices and personalities do not have nearly so many bitter disputes.

However, I was surprised to see that Anderson followed the conventional line in attributing the invention of agriculture to Neolithic

times, in close association with "village and town life, the nation, highly organized religion, the wheel, the seagoing ship, the loom, metallurgy, writing" et cetera. Archaeologists are largely agreed on this—I am speaking here of the Old World only—recent invention of agriculture. If they were as aware of botanical evidence as of potsherds and village sites, I think they would have to leave the question open.

There is botanical evidence.

In my opinion, based upon the botanical evidence, what was invented in Neolithic times, and perhaps in the Iraq-Iran region as conventionally thought, was the cultivation of grains. A number of grasses and grasslike plants, some completely unknown to most Americans or even Europeans, came into large-scale cultivation. Since grains take rather long to grow and are bulky to store—but can be stored, notice—it was necessary to have permanent or nearly permanent villages. Since these grains should be planted, cultivated, and harvested at certain times of year, a calendar is needed. Since a community might acquire a surplus in good years, records must be kept of who owns what, the priests—who keep the calendar—must keep their tithes coming in properly, et cetera, so writing becomes important. With surplus grain, cattle can be kept instead of hunted. Weeding and tending the fields must have been the first large-scale standardized industry where a person repeats over and over a simple monotonous task in the



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same place. The adventure of hunting would be lost.

Civilization, I think, sprang up more from the adoption of grain-crops than all other causes combined.

The growing of grains may have come from cultivating grain-amaranths, which are still a crop throughout the tropics and subtropics. The grain-amaranths often have red splotched and marked leaves and these forms have great magical significance in many areas. Perhaps they were grown first for magic, then for the seeds, and by analogy, the true grains came into cultivation. The actual origin of agriculture must go back far into the Pleistocene.

There has been no important crop originate in all six thousand years of history. At the dawn of historical times we find several hundred important cultivated plants being grown across vast areas. Now these plants have several unique features—they will grow in most soils and climates—virtually no wild plant, if any, has the adaptability of any of these diverse crops—they have no resemblance, or very little, to any known wild species—a very peculiar situation in this large a number—they have highly modified reproductive systems and may even be sterile, they show evidence of hybridization and chromosome changes, and—very notably—they are associated with large numbers of weeds, which share their peculiarities. The crop of yesterday is the weed of today as a general rule. The few crops that we thought were close to some existing

ancestor have recently been found to be the ancestor of the weed, not vice versa. Corn, for instance, is one of the parents of the weed-grass teosinte, long thought corn's ancestor.

The cultivation of crops such as gourds, gingers, amaranths, lotus, and other exotic plants, was probably going on in India, Turkestan, China, and Malaysia, at a time when *Homo neanderthalensis* was chipping flints along the edges of the Eurasian glaciers. Or—did Neanderthal man practice agriculture? There is no evidence he did, so I doubt it, but what evidence would survive? Wooden plows, grains, et cetera would rot in fifty thousand years of humid climate. It isn't impossible. In any case, French caves and Iraq village sites will give us little evidence if the real origin of agriculture was inside the present U.S.S.R. and Red China.—John Beckner, 736 Myrtle Way South, St. Petersburg, Florida.

Hm-m-m—Then how old IS agriculture? How long would it take to break the chromosome stability of a wild plant?

Dear Mr. Campbell:

I have been conducting a statistical study of vocabulary in your magazine. Here are the results:

1. ERIC FRANK RUSSELL averages: 4.79 letters per word.
2. RALPH WILLIAMS: 4.68 letters.
3. E. B. COLE: 4.50 letters.
4. JAMES WHITE: 4.50 letters.
5. ISAAC ASIMOV: 4.28 letters.

6. JAMES BLISH: 4.26 letters.

The above results are as accurate as I can make them—taking random samples of a thousand words from different parts of a story, and from different stories by the same author, counting the letters and averaging. Some words are hyphenated, and some authors use hyphens more often than others. I've counted all hyphenated words as two words.

The results aren't meaningless. They have a definite significance. It isn't pure chance that, say, Russell's average is 4.79 and Asimov's is 4.28. And there is no likelihood that my figures are radically inaccurate. If any of your readers care to check, they may do so by counting the number of letters in a passage of a thou-

sand words taken at random out of a story by Asimov. They will find that the passage has maybe 4,280 letters in it, maybe 4,180, or maybe 4,380. But it will *never* have 4,790.

Conversely, a passage of 1,000 words of Russell's prose may have 4,690, 4,790 or 4,890 letters in it. But it will *never* have 4,280 or less.

By the way, if any reader is interested, try writing a readable 5,000 word story with an average word-length of less than 4 letters or more than 5 letters. It may sound easy, but it isn't, I assure you.—James England, 17, Wellington Street, Littleborough, Lancashire, England.

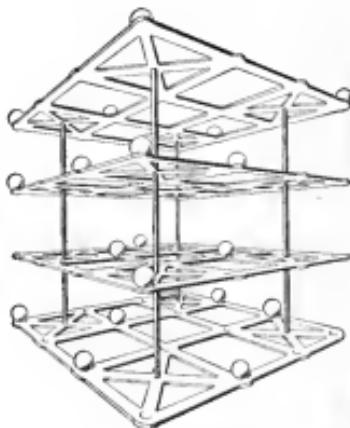
Hexapedalian polysyllabic composition's similarly inefficiently arduous.

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(Continued from page 5)

ing friends. Sorry; the penalty of being out in front of the crowd is that there is no crowd with you.

Actually, the genius probably doesn't want to be a leader; he is simply trying to be what his nature makes him—and it makes him lonely because his nature is unusual.

Well—"A poor workman quarrels with his tools." If the genius wants to work with Mankind, he might, perhaps, do so more efficiently if he got over blowing his stack at their stupidity, and tried taking the viewpoint he so violently demeans—that they are *not* stupid. That they have a great, and very ancient wisdom. That the flash of genius can be flashing in the wrong direction. Hitler was undoubtedly a genius; so was Genghis Khan and many another of Mankind's great geniuses-in-the-wrong-direction.

The trouble is that the great men have transmitted not only their very real and very great wisdom to the culture—they've also transmitted their anger at Man.

Since geniuses suffer most intolerably from Mankind's intolerance of new ideas, the culture has a great schism in its thinking; it insists that we must be tolerant—and is intolerant. Possibly things would work better if we acknowledged that Intolerance is a great, useful, and necessary thing—properly used. It's worth noting that three billion years of evolution has produced a human organism that is so intolerant that you

can't tolerate a skin-graft from any individual . . . unless you happen to be a one-egg twin, in which case you can tolerate a skin-graft from your genetically identical twin.

Three billion years of evolution doesn't make nonsense; why is intolerance a good and necessary thing? I don't know . . . but I've a strong hunch we'd do a lot better with controlling intolerance if we first found out what it was meant to do, and how it was meant to be used. Most communities feel that it is wrong to tolerate a thief, pervert, or a sadistic killer. Let's try the demeaned viewpoint that Intolerance is a sound, necessary, and valuable function—in its proper place.

When the United States tried the experiment of Prohibition, it held "There is no place for a liquor seller." Since people do want liquors, there obviously is a place for liquor sellers. Denying this fact pushed the liquor seller underground, where he operated without thoughtful control. The result was very bad liquor, poisonous liquor, and uncontrolled distribution of liquor. Fortunately alcohol is one of the best antiseptics, so bacterial contamination of the liquor due to dirty handling didn't add to Mankind's woes. Just imagine what would have happened if it had been milk!

So long as we insist "There is no place for Intolerance in human thinking!" we are going to have Bootleg Intolerance — uncontrolled distribution, badly organized intolerance, poisonous intolerance. I have a

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hunch that if we tried that demeaned viewpoint, we might accept that Intolerance is a fine and necessary thing—and wind up with a lot less, much more sanely distributed.

Of course, the powerful and sweeping condemnation of Intolerance that is standard in our culture is an excellent example of a type of thinking that our culture sweepingly condemns—thinking in terms of categories and sweeping generalizations. Inasmuch as the culture itself teaches that we should think in those terms, and does so by example, while teaching that we should not do so in terms of preachments, I'm a little confused as to what the culture does believe. The culture *preaches* that you should not think in sweeping generalities—but the culture *does* think in precisely that manner. It's a "Don't do what I do; do what I say!" problem.

Possibly thinking in generalizations is another of those demeaned and suppressed concepts that need to be brought out of the Bootleg class. Since Mankind does, and has for a long, long time thought in those terms, and has, somehow, managed

to survive, maybe there is a modicum of validity to it that needs to be found. You can't get a man to give up an idea when it's sound and valid; you've got to find the area of its validity, acknowledge it belongs there—and then he'll be able to agree there are places it doesn't belong. But saying it doesn't belong anywhere, under any circumstances, doesn't get you far. So long as you insist on that attitude, you can't regulate it, channel it, or apply it where it does fit.

Let's try taking the demeaned viewpoint; assume that thinking in categorical terms *is* valid, and see how it could be used.

1. Juvenile delinquents tend to grow up and become criminals.

"Why, that's no way to judge a man! I have a neighbor who was a juvenile delinquent, arrested seven times, and almost sent to reform school. But he's a fine man—an engineer with a big job in an important construction company. You're thinking in categories, and you know that's not sound."

2. Individuals who have no fixed address, no family, and no fixed associations in any business tend to be untrustworthy.

"That's nonsense! I know a man who's a business organization consultant. He's a bachelor, and he has no fixed address, and naturally, in his work, changes from one business association to another rapidly. That doesn't mean a thing; it's just sloppy thinking."

3. Individuals who carry concealed guns are usually open to considerable suspicion.

"Oh . . . nonsense! I suppose you'd say that a detective was a crook because he carries a concealed gun!"

4. There is a tendency for social deviants such as criminals to take to flashy and extreme styles of dress.

"That would make most of the teen-agers I know criminals! You can't judge a man's character by his clothes, and you know it."

5. This individual was a juvenile delinquent; he has no family, no fixed address, no business associations, is carrying a concealed gun, and is flashy dressed. I suspect he may be a professional criminal, and will take precautionary measures on that basis.

Perhaps the major trouble with the use of thinking-in-categories is that most people do too little of it—they don't use *enough* categories. Senator McCarthy evidently feels that one-time interest in a Communist-associat-

ed organization is adequate proof that a man is untrustworthy—though it happens that his other category-associations include twenty or thirty conservative political, economic and religious organizations. It isn't that categorical thinking is itself wrong—but that, like any good thing, it can be used wrongly.

If you have a piece of glass, and put a streak of lacquer on it that absorbs ten per cent of the transmitted light, you can't blacken it with that. But if you put thirty such streaks across the glass, and they all intersect at one point . . . it won't be black, of course, but it'll be awful darned dark looking.

Maybe the human race would get along a bit better if it didn't try to totally suppress things that Man, over the megayears, has learned the hard way—by evolution. Not all animals with big teeth are carnivores. Not all animals with claws are carnivores. Not all big animals are carnivores. But if you enter a region that is totally strange to you, and you see a large animal, with large pointed teeth, that has claws rather than hoofs, and does not have horns—you have no logical data, of course, about the nature of this individual, it's just pure suspicion, but you're rather apt to live longer if you suspect it of being a hunting carnivore.

On the other hand, as Couvier, the great Zoologist pointed out, the traditional Devil is obviously herbivorous; he has horns and hoofs.

THE EDITOR.

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